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RADIO HEALTH TALKS

By HENRY COPLEY GREENE

WITH AN

INTRODUCTORY NOTE

BY

RICHARD C. CABOT, M. D.

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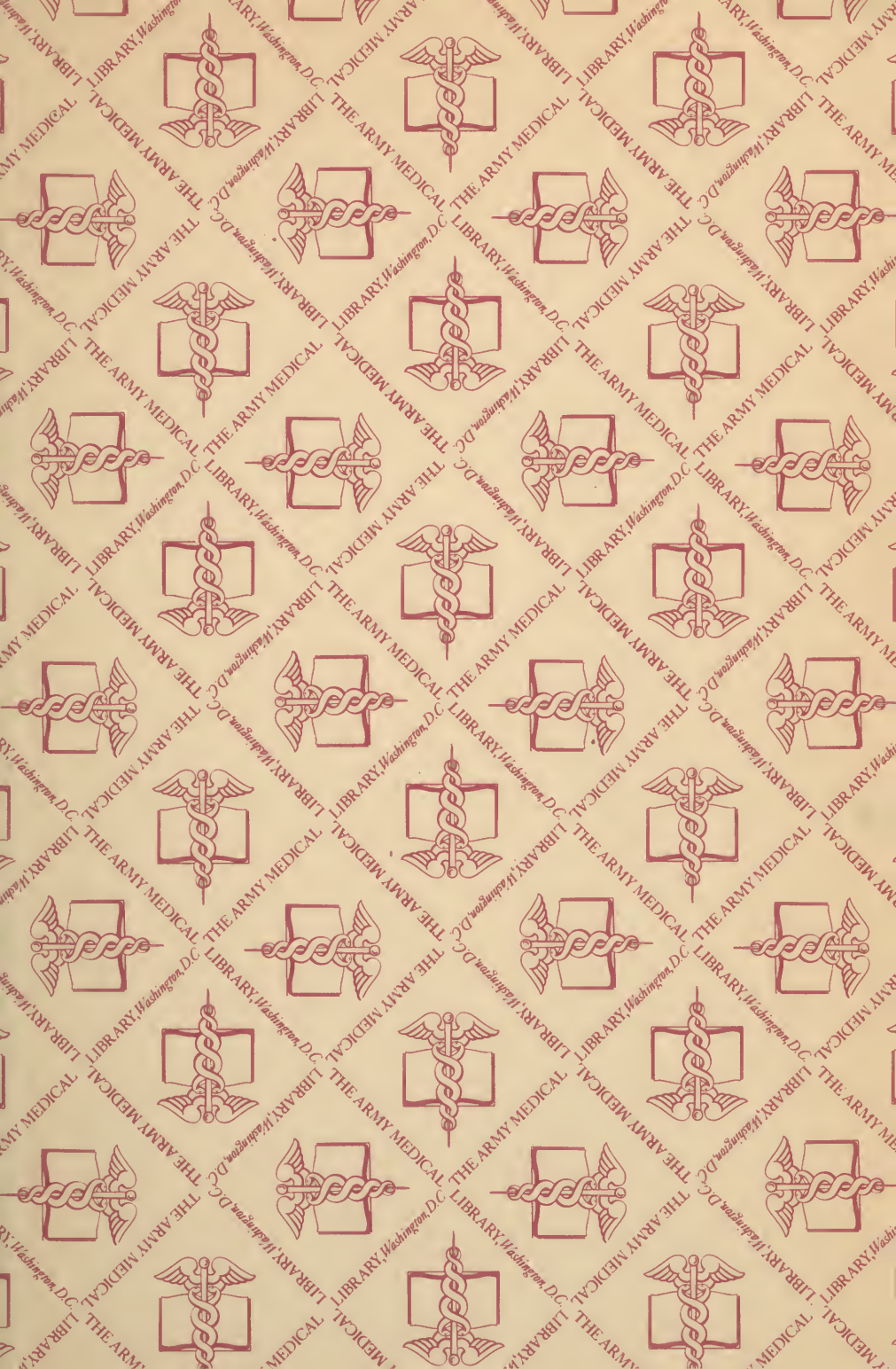
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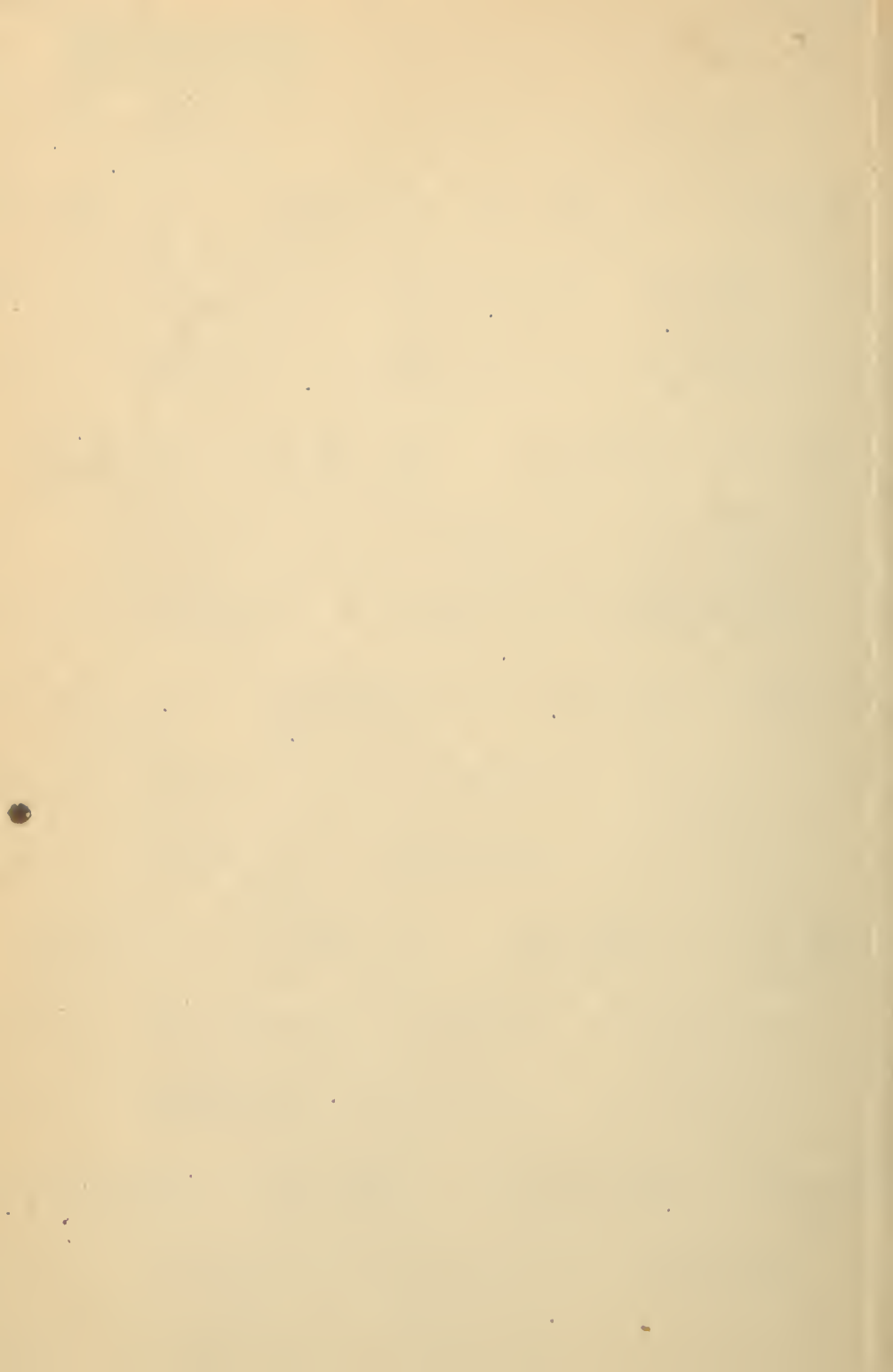


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RICHARD C. CABOT, M. D



1923

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Department of Health Service
Boston Metropolitan Chapter
American Red Cross
73 Newbury Street
Boston, Massachusetts

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LISTEN IN

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BY

HENRY COPLEY GREENE

INTRODUCTORY NOTE

The outstanding merit of Mr. Greene's book is that it is never dull, yet never sensational. Most health books are very unhealthy and very dull. They paint countless "dangers" which the average man runs with impunity every day, because they are not dangerous. Such books would poison our minds with terror and nervousness, while trying to make us fat and happy,—but for their saving slump into dullness. Few of us read far enough to get much scared. Blessed forgetfulness soon sweeps down the embryonic shivers, and no harm is done.

But this book is interesting, and so far as I know, most of it is true. If you begin it, you will probably read it through, and remember much of it. There are extraordinarily few exploded theories in it; and there is a great deal of sensible advice—even exhilarating advice here and there. This, for so gloomy a subject and one so morbidly fascinating to many Americans, is a remarkable achievement. It is a heavy burden to be writing a book on hygiene at all; but if one is compelled by one's conscience and by the public demand to do such a thing, I don't believe it can be much better done than Mr. Greene has done it.

RICHARD C. CABOT.

PREFACE

In these talks, which have gone through the air to thousands of listeners-in, there is nothing unfamiliar to physicians. Much in them, however, is still new to the man in the street; and almost everything in them, we venture to say, needs application daily by you, dear reader, and me. For everything in these talks has been chosen for practical use, and tested, so far as seems humanly possible, for exactitude and truth. Every separate little talk has been read in advance by a committee of public health experts,—Curtis M. Hilliard, Professor of Biology at Simmons College; Roger I. Lee, M. D., Professor of Hygiene at Harvard College; and Bernard W. Carey, M. D., Director of the Division of Communicable Diseases of the Massachusetts State Department of Public Health. The substance and much of the wording of certain talks has been contributed by experts,—Miss Evelyn Schmidt, Dental Hygienist, State Department of Health, who kindly drafted, “The Decay of American Teeth”; and George K. Pratt, M. D., Medical Director, Massachusetts Society for Mental Hygiene, who supplied the first draft of “Mental Health for Children.” Many of the talks, moreover, have been read by specialists who have given us their criticism and advice: Merrill E. Champion, M. D., Director of the Division of Hygiene, Massachusetts State Department of Public Health, on “A Fair Chance for Mothers and Infants”; Richard M. Smith, M. D., Associate Visiting Physician, Children’s Hospital, on “Children Too Young for School”; Richard C. Cabot, M. D., Professor of Clinical Medicine, Harvard Medical School, on “Keep a Good Heart”; George K. Pratt, M. D., Medical Director, Massachusetts Society for Mental Hygiene, on “Worrying Along”, and “Spare Time”; A. B. Emmons, 2nd, M. D.,

Director of the Harvard Mercantile Health Work, on "Cleanliness"; John E. Fish, M. D., Superintendent of the Massachusetts Hospital School, on "Fresh Air and How to Get it"; George S. Derby, M. D., Assistant Professor of Ophthalmology at Harvard University, on "Your Eyes"; Harold DeW. Cross, D. M. D., Director, Forsythe Dental Infirmary for Children; and Miss Evelyn Schmidt, Dental Hygienist, State Department of Health, on "The Decay of American Teeth"; D. Harold Walker, M. D., member of the staff of the Massachusetts Eye and Ear Infirmary, on "Ears to Hear With"; Edward Reynolds, M. D., Vice President of the American Society for the Control of Cancer, and Robert B. Greenough, M. D., Director of the Harvard Cancer Commission and Visiting Surgeon, Massachusetts General Hospital, on "Playing With Death"; John B. Hawes, 2nd, M. D., Director of the Boston Tuberculosis Association, on "Tuberculosis"; and Edward O. Otis, M. D., Professor of Pulmonary Diseases at Tufts Medical School, on "Steer Clear of Tuberculosis". The help of all these men has been invaluable. If you profit by this little book, pray add your thanks to ours.

It is with pleasure that we acknowledge the unfailing hospitality of the American Radio and Research Corporation from whose station at Medford Hillside, Massachusetts, these radio health talks have been broadcasted since January 10, 1922.

HENRY COPLEY GREENE,
Executive Secretary,
Department of Health Service,
Boston Metropolitan Chapter,
American Red Cross.

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PART I.

A DAY IN HEALTH LAND

Do you know our friend ASTRA, the Health Fairy? The children who do know her, believe in her, I can tell you. Why, a boy who had seen her in one of her plays, met her afterward, dressed up like an everyday young American. That didn't fool the boy. "Aren't you ASTRA?" he asked. "Yes," she said. "Well, then," he asked, "won't you please change this sausage into an Eskimo pie?"

The sausage was one of a bunch that the boy's Mother had sent him to get for her. So ASTRA did not change it into an Eskimo pie. But when the boy had delivered the sausages to his Mother, ASTRA did something better; she went off and far away with that boy into the orchard beside an old farmhouse; and there they picked rosy apples together, and sat on the ground, against the trunk of a great apple tree, while he munched a good ripe apple. And she talked to him, in the twilight, about the happy children that live up in the Milky Way.

Oh, they are laughing prancing children; and their cheeks are red, and their eyes shine! They work hard; they play hard, and they sleep on soft clouds in a breeze all night. Up betimes, they bathe in crystal lakes; they rub down, and run in the warmth of the early sun.

"Does the sun always shine there?" asked the Boy, twirling his apple core sleepily between his thumbs. "Is it warm always, or shiveryish like here?"

ASTRA put one arm around him. "It's crispy-frosty

often; but the star-children are as warm inside, as you are now." And indeed the boy felt a delicious soft warmth all through him, as he leaned his head against the Fairy's shoulder. His eyelids drooped. But really was it true that his eyes were shut? For when ASTRA just beckoned with her free hand, he saw a silver, five-pointed star come twirling down out of the sky, and stop just in front of them, afloat in the air.

ASTRA laid her free hand on a point of the star. "Come," she said. With her arm around him, he floated and rose, flying, racing, comet-like, through dark cool wind - - - -

He opened his eyes. It was early morning. And the boy, with ASTRA'S arms still around him, saw suddenly all about them, the gayest boys and girls that ever he had seen. They stood, with the boy and ASTRA, on the sands of a bright lake.

In they dashed, splashed and swam. Out they rushed, pranced on the sand, then frisked into the droll thickets where bath towels grow on the bath towel bushes, and celestial tooth brushes hang from the tooth brush trees. There they rubbed and brushed and dressed; then came out on the other side of the thicket, straight into a land of whiteness, the Milky Way, where milk ran from a pearl mountain down into a diamond-bedded brook, pure and fresh beside the road.

The boy, and those gayest boys and girls that ever he had seen, jumped over the brook, and made for an open tent where a long table was set, with plates of red, red apples, bowls of hot porridge, brown bread, bran muffins, eggs, milk in crystal pitchers. Onto the benches they crowded. Ravenously they ate, yes ravenously, but hard and slow, grinding that bully food, grinding and

grinding it between their teeth, and swallowing it down before they gulped their milk.

Then the Man-in-the-Moon had school for most of them; his silver face all grin-some and round. He had school that was work, you bet, but fun too, you better—for all the young ones, while big people in the garden rooted up rooty things,—potatoes and beets, parsnips and carrots, and cut up leafy things, beet-tops and spinach, lettuce and such. And in school, the Man-in-the-Moon had school lunch for the kiddies,—milk in small crystal bottles with goldy straws to suck it with. And a school-nurse lady in the spick-and-spanest uniform ever seen, weighed and measured all of them,—school kids and youngest kids too,—so as to start the year right. Then the Man-in-the-Moon let school out early, just to celebrate. And the boy, and all those gayest boys and girls, climbed Amethyst Mountain to pick the blue, blueberries. And they picked them, I can tell you, pailfuls and pailfuls.

Back in the open tent, on the benches at the long table, they had their noon-day dinner. A little meat, baked potatoes, and carrots and spinach, milk and blueberries and ICE CREAM made of really truly cream, served by ASTRA herself.

Then she waved her wand once. And they found themselves, all of them, in an airy warm space, lying in the shade on the ground. ASTRA waved her wand once more. They all slept—slept—slept; while ASTRA, with a smile on her face, sat watching them and thinking silent, brave and happy thoughts about each one of them,—thoughts that slipped out of her mind and heart into their minds and into their hearts to keep them brave and confident and always gay.

“Let’s go! Hi, there; up! Away. Let’s go! Let’s go!”

It was ASTRA’S voice that lifted them, wide awake, to their feet; and off their feet, into the air and into a daylight sky full of silver stars and stars.

With those silver stars, they played ball, throwing them one to another; and way, way up to catch, as they fell, with a silver splash, into their outstretched hands. Oh, what a game that was!—running and laughing, throwing, sliding, catching, batting,—all in a maze of blue, blue sky and silver, shining stars. And the boy played with the best of them; ran, slid, threw, caught,—gayer than ever he had been before,—and breathless with fun.

The boy wasn’t tired, not really tired, you know, and those boys and girls of wonderland, surely they weren’t tired. Yet when ASTRA caught all the stars one by one, and tossed each star separately up into its own place aloft there; they gathered willingly, the boy and his new dear friends, all in a fairy-land circle, quiet around her.

“Children,” said ASTRA. “Listen. Wise people say that you have enemies, queer little enemies too small to see. Never mind. Those wise people are right, you do have enemies, queer sickness-enemies, too small to see. But I tell you, and I’m wise too,—I tell you that you have friends, wonderful healthful, happy friends, unseeably small, but unseeably great; and you have human friends too. Trust them. Be sensible. And above all, be brave, brave and confident, confident and gay.”

The sun was setting, a disk of gold, in streaks of emerald and silver, ruby, amethyst and pearl.

“Come,” said ASTRA; and they slid through cloud-land, softly, swiftly, to their tent.

Bread and butter and honey and milk,—milk from the mountain of pearl; that was their supper!

Dusk came. They lay warmly on white clouds. AS-TRA kissed them one by one, all those gayest boys and girls that ever he had seen,—and at last the boy himself.

He opened one eye. “Thank you,” said he, “thank you. I’ve had the happiest day.” Then he opened the other eye. “Why, is that you, Mummy? I thought you was the fairy. Good night Fairy-Mummy, gimme ’nother kiss.”

And the boy lay sound asleep.

A FAIR CHANCE FOR MOTHERS AND BABIES

Why is there a high maternal mortality? Why is the infant death rate high? In your family and mine, things seem to run pretty smooth. As far as we can see, in our prosperous personal experience, Mothers and babies have a fair show. Barring inborn defects, most babies seem to get a good start against the dangers of their first year's life. And most healthy young women that we know seem naturally fitted for Motherhood, so that their bringing babies into the world is not only normal but safe. Child-birth and babyhood are happy and beautiful in your family and mine,—that is, in the average intelligent family not too poverty-stricken for the boys to build a radio set. But childbirth and babyhood in Massachusetts or in New England or in the United States are quite another matter. The risks, in fact, are disconcerting. While deaths from so-called summer complaints have been cut down, the total infant death rate remains far too high. And as to the risk to Mothers, in spite of our excellent medical and hospital facilities, the maternal mortality has not been going down in the last twenty years. On the contrary it seems to be increasing.

If this were a local situation, say among families in a squalid corner of Boston, we should say that those families were ignorant and poor. For is not infant mortality an excellent measure of community intelligence and prosperity? But the situation is general, involving with the

other states our own Commonwealth of Massachusetts. Now you cannot indict a whole Commonwealth. And we, at any rate, don't propose to indict Massachusetts. For Massachusetts is intelligent. Massachusetts is prosperous. And it is characteristic of both its prosperity and its intelligence, that the State Department of Public Health has been given authority and adequate means to go at this problem. It is up to the Department, then, to find an answer. It is up to the Department indeed, not only to find out what is the matter in Massachusetts, but what to do about it.

The Department has tackled this problem with painstaking intelligence. It is not merely classifying death certificates. It is having its physicians personally talk over the circumstances of every maternal death, with the hospital or the family physician and with the family. In this way the Department is getting at many unrecorded facts. It is also studying the hospital situation on the spot and getting the ideas of local physicians throughout the state. So while the Department gains information, mutual understanding increases; and local physicians and the public benefit alike.

Without interfering with local affairs for which the local health authorities are responsible, the State Department of Public Health also can and does study the local nursing needs. Through the State nurses, it studies local Child Hygiene conditions, and the manner and degree in which they are met by private or municipal nursing organizations. And on the basis of this study, the Department is acting, in its advisory capacity, to stimulate the new developments that may be needed.

Not content with the study and promotion of nursing organization, or even with the investigation of maternal

deaths in detail and case by case, the Department is putting up a positive fight for maternal and infant life. Shadows of deplorable ignorance, here, there and everywhere in the state, these are the direst threats to Mothers and babies. Day by day the Department is dispelling these shadows. It is spreading the light of knowledge by pamphlets and posters, newspaper stories, lectures, movies, and, best of all, by personal letters to prospective Mothers, and to Mothers of new-born babies.

The State Department of Public Health, we must all surely admit, is very active in finding out what is the matter, and in combatting the evils which it finds. But even this intelligent and well equipped Department must meet failure or mere half-success, if the public,—you and I and the man on the street—if WE don't back it up. Very well. We are glad to back it up. But how?

The answer is very simple. We can do just two things. We can pass along to all Mothers of young babies and all prospective Mothers, two simple bits of sensible advice.

The first is this; and let us help get it to every prospective Mother in every conceivable way: "Young woman, don't wait for something to go wrong. When you know that you are to have a baby, go to your physician; or, if you haven't one, choose carefully a good physician. Learn from him the simple hygiene of pregnancy. Follow the laws of physical common-sense that he can teach you. This is the first step toward making maternity normal, and keeping childbirth safe."

The second thing that we can do is to pass along a second bit of very simple advice to all prospective Mothers and to all Mothers of new-born babies: "Nurse your baby. Don't let pleasure or work or discouragement, or anything but the direst exceptional necessity, deprive you of

this privilege, or drive you from this duty." There is no equivalent for Mother's milk. The baby nursed by its Mother has a chance of life and health, denied to bottle-fed babies. No skill in prescribing modification of cow's milk can replace the advantage of breast feeding. For Mother's milk is not only the baby's perfect food, it is a positive savior from disease. It gives the baby an immunity obtainable in no other way. The breast-fed baby has ten times the bottle-fed baby's chance of good health. So it is up to young Mothers to nurse their babies, and to nurse them as long as possible. And no Mother can tell how many months that may be, unless she studies to keep an even and happy state of mind, through every difficulty. Only in this way can Mothers keep the milk which their babies need.

Pass along these two maxims. First, get good, early medical advice. Second, where it is humanly possible, see that every baby is breast fed. If you can get this advice to all young Mothers, you will solidly help the campaign against Maternal and Infant deaths.

EAT GOOD MILK

Some folks don't like milk. Others think it doesn't matter whether they drink it or not. Far too many people don't bother even to feed it to their children. Yet milk is the most important of foods. It is excellent for adults. For children it is indispensable. As for babies, if they are to grow up healthy, they absolutely must have milk. If it is in any way possible, indeed, they must have Mother's milk: they must be breast fed!

Look at the results of milk diet. Human beings,—exclusively milk fed in babyhood, grow proportionately faster than they ever grow again. The baby who fails to double his weight in six months and treble it in twelve, has something the matter with him. We shall not argue that a straight milk diet would make grown-ups, —or even young children,—treble their weight in a year. Such growth would be as monstrous as it is impossible. We merely wish to emphasize what the phenomenal growth of milk-fed babies suggests:—that milk has a special and peculiar value as food.

Certain experiments on animals have emphasized this fact. Take, for instance, the case of two little pigs,—not human pigs,—just the porcine animal. These piglets, two from the same litter, were given exactly the same ration, except that No. 2 received no milk after he was weened. Both No. 1 and No. 2 were treated, otherwise, exactly alike; and both had all the food they could gobble. Well, pig No. 1, at the end of his allotted time,

grew to 42 pounds 3 ounces; but, on the same day, pig No. 2 tipped the scales at only 13 pounds 5. Our milk-fed piggie, in other words, grew more than three times as fast as his milk-bereft brother.

Now pigs is pigs; and humans, of course, is humans. But young humans, too, show wonderful gains from milk feeding. Take, for example, that nine year old girl, Thekla, who had been brought up mainly on coffee and bread. Her Mother, you see, thought beans and a wee bit of meat the only necessary extras. Well, Thekla was taken to camp; and there she was given a well-balanced, simple diet, including a quart of milk each day. What was the result? She put on weight three times faster than before. Or take that group of children who were gaining weight at an average rate of less than two ounces a week. When milk was added to their diet, they gained an average of ten ounces; five times as much as they had gained before.

Milk clearly promotes growth in children, just as in other animals. Why? Because milk provides almost every element that the growing child can need. Milk contains, in easily digestible form, carbohydrates and fat for bodily warmth and energy; salt which is essential to certain bodily processes; lime for the bones and teeth; protein to build and repair the child's flesh and muscles; certain important mineral salts; and last, though not least, those vitamins whose chemical composition is still unknown, but whose growth-promoting effect is as plain as the nose on your face.

Children, and nursing Mothers too, simply must have milk. Nursing Mothers cannot nourish their babies, children cannot properly grow, without this necessary food. Every child, from eighteen months to twelve years,

should have at least a pint and a half of milk—clean, pure milk,—every day. They need it more than any other single food.

After infancy, of course, milk is no longer the alpha and omega—the beginning and the end—of diet. It is too completely digestible to give the bowels that bulk of residue, or roughage, which they demand. And it is deficient in just one mineral—iron—which we must put into our blood. So even small children should have fruit and green vegetables. As additional sources of energy, it is convenient to give them whole cereals too.

Older children and adults need more nourishment than they can easily get from milk alone. If you or I, for instance undertook to live on a straight milk diet, we should have to drink at least three quarts a day. That would be bulky, and somewhat boresome. So adults, and older children, too, get most of their carbohydrates from bread, potato, etc., and much of their protein from eggs, meat and fish. All these are nourishing; all of them are agreeable. But they should not make us forget the merits of good, clean milk—including, of course, those unreplaceable milk-products, butter and cheese.

Remember, please, that when we say MILK we mean what we say. We mean milk in the natural state; Mother's milk from healthy mothers and cows' milk from healthy cows. When there isn't any Mother's milk for the baby, and when cows' milk disagrees, the Doctors sometimes have to use goats' milk from healthy goats. But everything that comes out of a milk can or a milk bottle isn't clean milk from healthy cows,—or from goats either. It all depends on what went into the can or milk bottle. If dirt and bacteria went in with the milk, they may cause disease. Therefore get clean milk always. And

because the infant's food is almost entirely milk, and children's food mostly milk, remember the old adage: If your eggs are all in one basket, watch the basket.

If you have lost the milk-drinking habit, let us urge you to re-establish it. Take milk in your soup; drink it in your coffee; drink it straight. For clean milk is not only an excellent food; it is the most important of all foods. In the family it is the first food to buy; and the last to dispense with. And if it is admirable for adults, for children it is absolutely a *sine qua non*. They must not do without. So if they or you don't care for milk, and think you can't drink it, remember that milk is food—the best of foods: remember *that*, and *eat it*.

THE CHILDREN TOO YOUNG FOR SCHOOL

We all wish happiness to the children. We wish them health, too, as a means to happiness and all good things. The wish is excellent. But what can we do? What can we really accomplish to build up health among the children, and so to give them more hardihood throughout life?

Our poor health habits and our bodily defects in youth and early manhood date, very largely, from before we went to school. If our wish for the children's happiness and health is to be practical, our best bet is to help them early. The time to help them best is before they are of school age; it is before the school physician or the school nurse has ever seen them. That is the time to establish their health habits, and to see that their bodily defects are corrected or removed. The children's chance to grow up healthy will be bad, if we—their uncles and aunts, their brothers and sisters and friends,—don't join with the parents to help each small child. We must help them toward good habits; habits of happy confidence, of putting through what they begin, of playing companionably in the open, sleeping regularly and long each night, resting every day, and eating without rebellion the simple diet of childhood,—that natural diet, including ample milk, which builds vital flesh and solid bones. We must help preserve them from the so-called children's diseases. We must work to abolish the bodily defects which now so appallingly sap their health when very young.

You think we are crying "Wolf! Wolf!?" You think that no danger really threatens these young friends of ours? The danger, unfortunately, is real. Health Surveys made, for instance, on opposite shores of the Continent,—in San Francisco and in New York, show the same threatening facts. At least three-fourths of these children too young for school have neglected and defective teeth. They have teeth whose early decay, probably resulting from bad diet, already requires repair. More than one-fourth of these children have unhealthy tonsils. And, among all these children, one in five is seriously underweight.

Now it is true that some of these underweight children are well nourished. But most of them are not. They are badly nourished. They are not only below weight for their height and age; they have ill developed muscles, flabby tissues, poor color; they stand and sit with protruding stomach and with chest compressed; they are easily tired; often they are down with colds and other infections. Why? Not because their families are too poor to provide the necessary food. No. These children belong, all too often, to families of the well-to-do. These children are malnourished because their families have failed to teach them good habits of life and hygiene; habits of ample sleep, and play in the open, and daily rest.

Let us come back a moment to their teeth. In New York one-quarter of these young children have bad teeth, and nothing more. But very many have bad teeth, plus something else. They are malnourished or their tonsils or adenoids are diseased; and a few of them have lung trouble or heart disease. This doesn't mean that the tooth decay causes all these troubles; any more than it proves that diseased tonsils, for instance, cause decay of

the teeth. But this much has been proved;—even in these young children, decayed teeth should always be repaired, to prevent further decay and infection. The matter of tonsils is even more important. Swollen tonsils need medical attention. If a competent specialist recommends their removal, don't delay. They should be promptly removed. For diseased tonsils may lead to ear infections and deafness, to that very dangerous ear disease, mastoiditis, and in many cases to rheumatism and heart disease.

With teeth and tonsils attended to; with habits of good hygiene established, young children are in vastly less danger. Children whose physical defects are corrected and whose habits of good hygiene are solidly established, will usually resist, far better than others, the infections passing from child to child. But do not think that all danger is past, or that children need no further protection. Children's diseases are too often regarded either as inevitable, or as unimportant. Measles, whooping cough, scarlet fever, diphtheria,—these children's diseases are serious things. All may leave grave after-effects. And diphtheria especially is a dangerous threat to their lives.

What must we do to protect them? Young children must, of course, be kept away from people with these diseases during the whole period of quarantine. What is more, whenever it is humanly possible, they must be separated from people coming down with these diseases. The only way to do this is to steer them clear of people with colds. For what seems like a mild cold is often the early and very contagious stage of measles or scarlet fever or whooping cough. Why, we know one teacher whose slight "cold", as she thought it, started an epidemic of sixty-five cases of measles. To help prevent such infec-

tions, keep away from the kiddies whenever YOU have a cold. And when THEY have colds, imprison them at home.

The fight against measles, scarlet fever and whooping cough is difficult and uncertain at best. But against the greater menace of diphtheria, we have, at last, an easy and potent weapon. By three simple and absolutely safe injections—without uncomfortable after-effects—children can now be made immune to diphtheria. Beware of the misinformation on this subject spread broadcast by misguided zealots. The propaganda of these people, if successful, would result in the death of literally hundreds of young children. The toxin-antitoxin treatment, as administered in this state, is not only absolutely safe; it is the one great preventive against the arch-enemy of young children, diphtheria, the disease that kills most of its victims while they are still too young for school.

Friends, help in spreading knowledge that means health to young children. Help get their physical defects corrected. Look out especially for their teeth and their tonsils. Watch their weight. Protect them from children's diseases. Help them establish solid habits of good hygiene. That is the way to put them on the road toward a lifetime of better health,—health that they can use in living to some purpose.

HERD YOUR BACTERIA AT HOME!

The so-called common cold is much too common. Especially in winter, colds are passed around, around and around. Many of us catch them again and again; and, though we don't die of them, we lose time. In Boston, we waste more time, and money too, on colds than on any other single disease. What is worse, very many of us go on from colds to chronic ear disease, and deafness, painful and stiffening joint infections, bronchitis, or pneumonia.

Stamping out colds would save time and money, suffering, disability, even some loss of life. How can all this be done? The answer is; it can't! Not wholly. But much can be accomplished if we will only remember how colds are really caused.

The superstition that colds are caused by drafts, wet feet, and cold is wide spread. Its roots are deep. And like many superstitions, it is partly, not wholly, true. Cold, wet feet and drafts do not cause the common cold; not directly. But they do, apparently, predispose us to colds, especially if we are tired or below par. So the bacteria swarming in our noses, throats and tonsils, find a point of low resistance; and we promptly come down with a more or less beastly cold.

If colds or drafts were the real cause of colds, we could escape them by shutting ourselves in, with doors and windows sealed. That is what we do pretty completely, throughout the winter months. In houses and offices, we shut ourselves up in air, heated to a high and even temper-

ature, air that is motionless and desert dry. What is the result? We catch more colds in winter than in any other season of the year.

To escape colds, we should mitigate this winter imprisonment. We should secure, as far as possible, fresh and moving air, not too hot and not too dry. An ample supply of clean air helps dilute the bacteria beyond the danger point. If the air can be kept fairly moist and not too hot, the mucous membrane of our noses and throats will escape the strain of constant drying up. What is more, our general vitality, if recent evidence is confirmed, will be enhanced by reacting to cooler and more varied temperatures.

To cut down the prevalence of colds, we must learn and spread two habits of good hygiene: first, this habit of decent ventilation; second, the habit of herding our cold-bacteria at home.

See how things work on the opposite principle. Your sneezing and coughing friend with a cold sprays thousands of moist particles before him in a fine mist, which you can actually see in the sunlight. Each particle carries disease. Even when he speaks, the same mist spreads into the air around him. Don't breathe it. And when you, yourself have a cold, remember not to face toward a friend, while talking; also not to sneeze, without first covering your mouth and nose. Stay out of crowded public places. Their air is usually dirty already; and you will only increase the supply of bacteria. If possible, avoid your office. If not, behave yourself with caution. Otherwise the colds which you cause there, may easily cost ten times more than the time-off needed to stop your symptoms. Remember, too, that your "cold" may really be

the first stage of measles, influenza, pneumonia or some other serious infectious disease.

Use your handkerchief when you sneeze, and change it often. A dirty handkerchief transfers bacteria to the hands. And your fingers may pass the bacteria on, when you shake hands or pass dishes at the table, and in a thousand other ways. Such transfers of infection can be prevented, if we remember that the cold-bacteria lurk in every particle of moisture escaping from the nose or mouth. Wash your hands before eating. Use your own towel. Herd your bacteria at home.

The best way to preserve the public is to keep your cold indoors. That is the best way also to cure yourself. Prompt treatment, thorough treatment, pays. If you catch cold, apply at once three simple remedies, (1) all possible rest; (2) all possible sleep; and (3) warmth. You will do well also to drink water copiously, and to free the bowels if they are sluggish. If you have a temperature, go a step further. Don't try to fight it. Surrender. Put that temperature to bed. A cold or bronchitis plus fever, is much less likely to result in pneumonia if the patient and his temperature get quickly between their sheets. If that remedy does not produce a normal temperature within a day, call for a good Doctor. And when your cold is cured, avoid the next one.

Are you the kind of a person who "naturally" catches cold? People who sleep in the dead atmosphere of closed rooms naturally catch cold; people who work in offices heated above 70 degrees; people who take no exercise; those people lower their resistance to disease. Those people catch cold. Don't imitate them. The hunter, taking stiff exercise and sleeping in the open, is practically free from colds. Take the hint. Even if you are

a city worker, harden yourself; take cool sponge baths; demand clean cool air—and plenty of it—in workrooms and offices! Dress and eat sensibly; get some exercise, and sleep with your windows open!

Make a habit of good hygiene. Make a habit of preventing colds. Remember how these pests are passed round. And herd your bacteria at home.

THE SLAUGHTER OF THE INNOCENTS

It is hard to believe that a civilized community, with the knowledge and the means to save six hundred people from dying, will let those six hundred die. We flatter ourselves that we, in Massachusetts, are civilized. Yet that is just what we are doing. We know how to recognize diphtheria; we know how to cure it in ninety-nine cases out of a hundred; and we know how to prevent practically 100 per cent of all cases. Yet about six hundred people die of diphtheria each year in Massachusetts. And throughout these United States, the situation is the same; some fifteen per 100,000 of the population are dying yearly of this one recognizable, curable, preventable disease. And to make the tragedy the more shocking the sick whom we allow to die are mostly young children. Over 60 per cent of them are too young to be in school.

Why, you ask, is that state of things permitted? How can it go on? The answer is that our Health authorities, with all the good will in the world, are powerless to stop it without more popular knowledge and support. If this slaughter of the innocents is to stop, the public,—you and I and our friends,—must first learn something about it, and then take action.

The first thing which we can do, is to keep on the lookout for diphtheria in our families, and among our friends. Not, of course, that we laymen can diagnose the disease. Far from it. But we can know and must remember that sore throat, especially among children, may easily mean diphtheria. Almost a third of the deaths from diphtheria are clearly due to public ignorance of this fact, or what is worse, to family carelessness and lethargy. For it has been shown that in almost a third of the cases of death

from diphtheria, no Doctor has been called in till after several days of illness; and in more than a tenth of the cases, the child was dying before the Doctor was called in.

We must get prompt medical care for every case of possible diphtheria. But that is not all. We must make sure that the prompt medical care which we secure is competent care. Distrust the Doctor who talks about "membranous croup" as if it were a separate disease, and not diphtheria. "Membranous croup" IS diphtheria. Any good Doctor takes what is called a culture, a specimen for examination from the throat. He may even use antitoxin before getting the results of this examination. For if a throat is suspicious, in the Doctor's opinion, it is too suspicious for delay in treatment. And antitoxin, used in proper quantity and at once, will cure practically every case of diphtheria.

Diphtheria is not only clearly recognizable and curable, it is preventable. It is, in fact, the one disease where modern methods of diagnosis, treatment and prevention are all well nigh perfect. It is not only up to us to see that diagnosis and treatment are expert and very prompt; it is up to us to use, and see that parents demand for their children, the new, well-proved, means of prevention offered to us by the state.

To show what can be done, let us tell you about one town; Newton, Massachusetts. Not to speak of the suffering of patients and their families, diphtheria cost Newton in money alone, twenty-eight thousand dollars last year. At an expense of only one hundred and twenty-six dollars and forty-two cents, Newton has tested nine hundred and fifty children, by what is known as the Schick test. The Schick test is a painless and harmless, tiny injection into the skin, which definitely shows whether or

not these children are immune to diphtheria, — that is whether they are naturally safe from the disease. The Massachusetts Department of Public Health supplies the materials for this test, free, to all physicians; and the Department, if need be, will arrange for a physician to make the test.

We can all know, then, whether or not we are immune to diphtheria. But that is only the beginning. If we are not immune, we can be made so, by what is known as the toxin-antitoxin treatment. This treatment consists in injecting under the skin, three small doses of diphtheria toxin-antitoxin,—a pure and entirely harmless product, manufactured and distributed free by our Massachusetts Department of Public Health. These injections make us absolutely immune to diphtheria.

Many thousands of people have been treated in this way, not only in Massachusetts, but in New York and in other states and countries, and it has been positively shown that, no matter how much they are exposed, they do not catch diphtheria. Whether this safety is permanent we do not know. We do know that it lasts at least six years. And that is enough. Think of it! If we all were made safe, from diphtheria—so that we could not catch it for six years,—the diseases would be stamped out. No one would have diphtheria; no one could die from diphtheria. Our present slaughter of the six hundred innocents would be only a nightmare of the past.

We know, unfortunately, that the great public moves slowly. In medical matters it is too ill-informed to seize at once such an opportunity for prevention. It is too uninformed even to secure the prompt and expert treatment of every case of possible diphtheria which alone can prevent fatal results. As we have seen, the public itself is

responsible, through delay, for about a third of the deaths from diphtheria. That is why we appeal to you.

Spread the gospel. Explain right and left the need for prompt expert care; for the immediate use of the known means of cure. And above all, spread the good news of prevention. Demand action by your local boards of health, by your school physicians, by your family Doctors. The prevention of diphtheria is not a fad. It is proved, safe and certain procedure, authorized and promoted by our Massachusetts Department of Public Health. Back them up. And the day of safety for us grownups, and especially for the children, the day of complete safety from diphtheria, will dawn perhaps sooner than cynics are yet able to believe.

THE DEATH RATE FROM HUMAN INCOMPETENCE

Half a dozen of us who make a business of public health were in the office of the Health Commissioner of a big city. We were discussing with him the death of one child,—a child dead from diphtheria. Said the Commissioner: "That baby's life ought to have been saved. Theoretically it could have been saved. We have the anti-toxin. Given in time, it will cure the disease. Theoretically we ought to be able to wipe out diphtheria with antitoxin. And we actually have cut down the deaths by more than half. But there are always cases left, like the one where the Mother doesn't call a Doctor in time, or the Doctor delays treatment. So a child dies like this one; and we say it died of diphtheria. It didn't die of diphtheria. It died from human incompetence."

"What are we going to do about it?" asked the Commissioner. "Given the average amount of incompetence in human nature, we've reduced the diphtheria death rate just about as low as antitoxin can possibly bring it. The only practical way to stop more deaths is to prevent the cases of disease. Well, we know the methods; we have the means. And this year, in this city, I'm going to put through this one thing if I don't put through anything else. I'm going to save these children from dying of diphtheria, by preventing them from having the disease."

The Commissioner was right. We have the means. The Schick test definitely shows whether or not children are susceptible to diphtheria,—that is whether they will contract the disease if exposed. The Massachusetts Department of Public Health supplies the materials for this test, free, to all physicians; and the Department, if need

be, will arrange for a physician to make the test.

We can all know, then, whether or not we are immune to diphtheria. But that is only the beginning. If we are not immune we can be made so by the toxin-antitoxin treatment.

Many thousands of people have been treated, not only in Massachusetts, but in New York and other states and countries, and it has been positively shown that, no matter how much they are exposed, they do not catch diphtheria.

How wonderful this sounds and is! But let us come back a moment to that baby whose death we discussed with the Commissioner. With such resources at our disposal, why did the baby have diphtheria at all? We must give, unfortunately, the same old answer. The trouble wasn't really diphtheria; it was human incompetence.

This is how it worked. There were three children in the family. The two older ones were given the Schick test. One was shown to be immune to diphtheria. The second older child was made immune, by the toxin-antitoxin treatment. And both of these two older children are alive and well to-day. But the mother thought that her third child was "too young" for the Schick test. No one could and no one would force the Mother to take even so harmless a measure of protection for her child. The baby was not given the Schick test: and it was not immunized. It caught the disease, and died,—died as a direct result of the Mother's ignorant folly.

In the fight against diphtheria, human folly is the great adversary. Think of it. By three simple, absolutely safe injections—without uncomfortable after-effects—children can now be made immune to diphtheria. Yet misinfor-

mation on this subject is spread broadcast. Even in our schools, there is a deliberate propaganda which, if successful, would result in the death of hundreds of children. The toxin-antitoxin treatment, as administered in this state, is not only absolutely safe; it is the one great preventive against the arch-enemy of young children,—diphtheria. In the present state of science, no well-informed and competent man can deny it. If you hear denials,—and you presumably will hear denials,—remember that such incompetence is an attack on the children. Counter it. And so help us win the fight against folly which is perhaps the largest part of the whole fight against disease.

MEASLES, A WOLF IN SHEEP'S CLOTHING

Why, why on earth, should we talk to you about measles? Doesn't everyone know that thousands of kids catch it, and are none the worse off? Aren't nine out of ten of them bound to catch it anyhow, sooner or later? Mightn't they just as well catch it now, and be done with it? No. Measles is by no means the innocent little disease that so many people think it. Sniffles, a slight fever, a trivial rash, these are not the whole story; not by a long shot. Measles at best is a risky affair. And the mortality from measles is not dropping, as one might expect, in proportion to our general progress in hygiene. That makes the disease a problem to health experts, and a problem which the public must help to solve.

You and I and the man in the street, aren't called upon, luckily, to solve the scientific problems of measles. It isn't up to us, for instance, to discover the "bug" that causes the disease. But it is our job,—everyone's job above the level of feeble-mindedness,—to help solve the practical problems of measles; how to limit its spread, and how to care for the children who, in smaller numbers, will continue to baffle us by catching it.

Measles spreads with incredibly more ease than diseases which the public makes much more fuss about. It is incalculably more catching, for instance, than leprosy, or even tuberculosis. It is catching-er, in fact, than the common cold. It is, pretty nearly, the catching-est disease in sight. The reason is simple. Measles, like the Common Cold, is transmitted in the particles of moisture sprayed, from the nose or mouth, in sneezing or coughing or talking. And the infection sprayed out in this way, is most dangerous just when the innocent patient

thinks there is nothing the matter with him, at least nothing worse than a cold.

So the first and best way to prevent the spread of measles, is to prevent spreading colds. A kid or a grown-up with a cold doesn't look like a public menace. Time and again he isn't. But next time, or the time after, his seeming cold is really the first and most contagious stage of measles. As we have said already,—one teacher of our acquaintance went to school as usual, in spite of what she thought was a slight cold. Two days later she was in bed with measles. Sixty-five other cases of measles followed among the scholars.

To avoid smaller and possibly larger epidemics, stay away from children when you have a cold. Even though you are a grown-up, it may be measles. And keep children who have colds, real or apparent, away from other children. Keep them at home; and especially if they have fever, keep them in bed.

Measles is catching in this sense; that it catches us. When measles, then, catches some one in your household, keep the patient in bed, in a separate room. Don't let other children stick their noses inside. Shoo off grown-ups below the age of thirty, unless you are sure they have already had the disease. Have the patient's handkerchiefs or towels boiled. Have anyone who visits the patient wash his hands before touching anyone else or any one else's knives and forks and plates. Only by such rigid care as this, can you hope to prevent fresh cases from cropping up. With all the tenacity in the world you may fail; for a fresh case may have started before the first was recognized. But isolation should be maintained,—isolation not only of the patient, but of any children who were with him after the first symp-

toms of a "cold" appeared. Not till ten days after their last "exposure" should these children be let loose.

These demands may look stiff. But every good Doctor will insist on them. See that your good Doctor's orders are obeyed, not only on these easily neglected questions, but with equal strictness in matters of medical care and precaution for the patient himself. Only in this way can we be confident of avoiding the dangers with which measles may threaten him. For measles is really a dangerous disease,—a disease dangerous to eyesight, to hearing and even to life. People usually forget the fact. But measles, especially with pneumonia or tuberculosis following it, causes even more deaths than scarlet fever.

You know, now, the reason for this talk on measles. The innocent looking little disease is a wolf in sheep's clothing. The wolf snaps at child after child. Only with the public's help,—and that means your help,—can this wolf be hemmed in. Beware of his woolly disguise. Hit him when you can. And hit him hard.

SCARLET FEVER

Last month one thousand five hundred and sixty-nine cases of scarlet fever were reported in the state of Massachusetts alone. The average case, fortunately, was light. Yet two children died last year among every hundred in Massachusetts who had the disease. Every possible child should be saved from this danger of death. And every possible child should be protected from the after effects of scarlet fever. The after effects, though often remote, are frequent and severe, and they include not only rheumatism, but heart disease, and that dangerous disease of the kidney, nephritis.

Scarlet fever should be fought with vigor. We should work to stamp it out, in every possible way. And the best way is this: to isolate, case by case, every child who has or may have the disease. It is our duty to isolate, not merely children known to have scarlet fever, but every child who shows signs of being ill and who may have the disease, and to keep them isolated until the Doctor can give him an absolutely clean bill of health.

We are much too cautious about depriving children of a few days of school; we are much too careless in taking chances of spreading unrecognized infections. What sane and sober person would scratch matches in a hay loft, watch the barn catch fire, watch the sparks fall on a neighbor's shingle roof, and only then call the fire department? Yet hundreds of sane and sober fathers, mothers, brothers and sisters, uncles and aunts do the exact equivalent with scarlet fever. They play with seeming "colds" which may be only the first and most contagious stage of this disease; they send children with "running" noses and sore throats to school; they let them

loose to play; and they send for the Doctor only when a rash has appeared. At last, when the Board of Health has placarded the houses, they shut those dangerous children in. But by that time, the town is lucky if more than one school is not half empty, and if a lively epidemic is not already rife.

Scarlet fever like measles, you see, begins with mere symptoms of "cold" in the nose and throat. Like measles, it is spread by so-called "droplets,"—thousands of minute moisture particles sprayed into the air from the throat and nose, when the patient coughs or sneezes. It is also transmitted through food and milk, and by indirect infection. But contrary to long accepted ideas, it is never—as far as we know—spread by the skin. It is probably not transmitted by books. It is most infectious in the early stages—even two or three days before the rash appears—rather than in the late stage of "peeling." To hem in scarlet fever we must, therefore, from the very beginning, isolate each case until the nose and throat are normal.

Effective quarantine for Scarlet Fever is no easy matter. It means isolating the actual and suspected cases; and also the children who have been exposed. This applies to all young people, and especially to children, under twelve, who have not previously had the disease, and who have worked or played with a scarlet fever patient within three days before the rash appeared. People who have had scarlet fever once are unlikely to catch it again. But children who have not had scarlet fever and who have been exposed, may easily come down with it. Effective quarantine, then, means isolating exposed children. It means isolating the children suspected of having the disease. And it means keeping actual cases separate

from all but a few careful people necessary for their care, —the parents, nurse and Doctor, who must see to it that nasal discharges are destroyed and that infected handkerchiefs, knives, forks, and spoons, etc. are thoroughly boiled. With less care than this, we can never be sure of hemming in scarlet fever.

The present prevalence of scarlet fever should teach us a keen sense of personal and family responsibility in matters of disease. We should form the habit of taking proper precautions. Let us establish that habit solidly; and let us cultivate a decent pride in living up to it. Then if the children are “sniffly,” or have sore throats, we shall automatically shut them in. And it will be a point of honor with us not to let those children loose till the Doctor can conscientiously certify that they are non-contagious.

The prevention of scarlet fever and of all children’s diseases is, after all, a question of conscience. Would we put poison in our neighbor’s food? Is it honorable to spray the bacteria of contagious disease into the air that our neighbor breathes? The people of at least one town — Shorewood, Wisconsin, — have recognized that it is not honorable. What is more, the idea has really got under their skins. They have caught it, like a contagion. From their School Superintendent, who is also Chairman of the Shorewood Board of Health, they have caught the contagion of pride and of honor. The people of Shorewood, Wisconsin, are literally proud of herding their bacteria at home. They refuse to be dishonored by letting diseases spread out from their homes. They really isolate, not only all cases of disease, but all suspected cases. What is the result? The result, we might easily imagine, would be to make a great number of children lose days and weeks of school. Nothing of the sort. Not a single

case of any children's disease has been caught during the last year in any Shorewood Public School. And the average child's attendance at school is now higher than ever before.

If we are to limit scarlet fever, our one practical move is to spread this Shorewood infection. Let us disseminate in every direction this Shorewood counter-contagion of honor and of pride. If we can make that contagion an epidemic, we shall drive out scarlet fever, and not merely scarlet fever but chicken pox and whooping cough, mumps and diphtheria,—the whole foul alliance of children's diseases. And the children, relieved of these crippling contagions, will thank you who have helped them; and they will be free, at last, and unhampered for the work, the play and the aspiration of their lives.

HOPE FOR WHOOPING CHILDREN

Five years ago, we should have had to make this a gloomy talk. Whooping cough in Armistice year was a pretty black menace, especially to young children. Though whooping cough wasn't unusually prevalent in 1918, it got hold of nearly eight thousand people in Massachusetts alone. It made havoc especially among children under three, infecting twenty-six hundred, and killing six hundred and seventeen of these children out of a total of seven hundred and twenty-nine.

That is the way whooping cough attacked us five years ago. That is the way it attacks us still,—killing some eleven thousand people, among them nearly ten thousand children under three, in the United States each year. But while whooping cough menaced us darkly then, and remains a menace today, we have set up better defenses. We can perhaps forestall its attacks. And our hopes are bright for saving not only wide-spread suffering, but very many lives.

In the old days our one means of prevention was quarantine. As you may imagine, quarantine for whooping cough is hard to make effective. Whooping cough, like measles, begins with the symptoms of a mere cold; and a child with what seems like a very slight cough may give his playmate a very severe case of whooping cough. It is generally most infectious before it is recognized at all. It is spread not only by contact, but like other respiratory diseases, by that "droplet method" which we have described more than once. The child—or grown-up—with just the slightest, innocent-sounding cough, spreads a spray of minute particles of moisture through the air, each particle teeming with germs of the disease.

Other people breathe in these droplets, or catch the infection from common drinking cups, etc.; or the child sucks things which other people afterward handle, and then convey the germs to their mouths with their fingers while eating. So the disease gets a start, and spreads. And quarantine seldom limits it before a slew of victims have already started whooping.

Necessary as quarantine is, we now have a second means by which we hope to stop at least partially the spread of this disease. This second means, moreover, seems often to make the disease itself far less severe. This means of prevention and alleviation is a vaccine. Administered, at forty-eight hour intervals, in three injections through the skin, it has no effects more unpleasant than a slight local soreness. If the injections are begun shortly after the patient's exposure to whooping cough, the chance of preventing the disease seems to be good. And even if given after "whooping" has begun, these simple and harmless injections seem likely to prevent more serious developments.

Take a case in point. Jack Waters, a small boy known to have a slight habitual cough, came to lunch with the Brown family and their four children. He coughed once or twice,—rather less often than usual. A few days later he came down with whooping cough. He was not whooping-cough vaccinated; and his case proved so severe that he had hemorrhages of the eyes. The Browns, on the other hand, were all promptly vaccinated. One got off Scot-free; and though the others soon began "whooping", their coughs were mild; and their sufferings practically nil.

This Brown family's experience is not spectacular. Some imaginary family of twelve exposed to the disease,

and all saved from it,—that would sound more thrilling. But when one remembers how wrenching whooping cough may be,—with spasms of coughing 20, 30 and 40 times a day, with hemorrhages often resulting, with pneumonia often following, and with a considerable death rate too;—then one realizes the gain in possibly preventing even one case in four, while saving the other three from whooping their heads off, and perhaps from whooping their souls into eternity.

Vaccination for whooping cough is not yet, like vaccination for typhoid, a proved success. It seems, however, too promising to neglect. The chances of prevention and of alleviation are too good to miss. It is only fair to children, exposed to the disease, to give them every opportunity of escape. Children who have been exposed should be separated for two weeks from children and from grown-ups under thirty who have not had the disease. And if the physician advises whooping cough vaccine, it should certainly be tried.

If any of the childrens' playmates come down with whooping cough, remember, then, to consult your family physician about it. And do not forget to separate exposed children, who have not already had the disease, from everyone else not similarly immune. Quarantine is a nuisance. But until the prevention and cure of whooping cough is on more solid ground, quarantine—rigid quarantine—must be the basis of our defence. Whooping cough is still a dangerous disease. To tuberculosis patients, to people in poor health, to children, especially to babies, it is dangerous indeed. For babies under a year, the fatality rate in 1918 was 40%. Under six months, it is still more murderous. So beware of whooping cough, and of the seeming “colds” that may be

whooping cough. Especially for sick people, and very especially for babies, beware! Insist on the strictest, the very strictest quarantine. While spreading the good news of progress, quarantine and a strict lookout for those insidious colds must be your part and mine, and the whole public's part, in the hard, long fight against whooping cough.

“WHEN IS A COLD NOT A COLD?”

Schools are wonderful places for public health work. There, school physicians and school nurses can observe the very beginnings of disease. School nurses, if there are enough of them, can see, every day, every separate child. If any single one shows even the slightest symptoms of disease the nurse can get that child examined by the school physician,—examined promptly, let us hope; and if necessary, she can have that child cared for at home, and kept out of school till the risk of spreading disease is passed. What is more, if the parents will do their share, the school physicians and nurses can train the children in habits of hygiene. The children will no longer sneeze and cough in each others faces, but only into a handkerchief. And with their parents' authority, the children will no longer come to school even with a running nose; but will stay at home till all symptoms disappear. Do such habits sound finicky? Far as they are from current practice, they embody only elementary prudence, and only the very simplest common sense.

Habits of good hygiene are important everywhere. They are perhaps most important in school. For three reasons. First, so-called children's diseases generally occur during the years of school life. Second, they occur mostly in winter, during the school term. Third, they are transmitted chiefly by the so-called “droplet method” of infection, which can best be combatted by habits of good hygiene. And, if we except diphtheria, they can hardly be fought successfully in any other way.

Everyone knows the “children's diseases,” which our brothers and sisters, our nephews and nieces, which all your young friends and mine, are so apt to catch in school. Here they are: Chicken-pox, measles, mumps,

scarlet fever, whooping cough. We may well add diphtheria, a disease mostly limited to children. This list covers the diseases that every youngster is likely to catch when he gets loose among his fellows. All these diseases are really serious, often fatal especially to younger children,—measles, for instance, causing more deaths than typhoid fever in the United States. And all these children's diseases are alike in this: in different degrees, they are school-age diseases: they are winter diseases; and they all effect the "respiratory system."

These children's diseases occur mostly in winter. Why is that? Because winter is the time when children are crowded together in closed rooms, and when their resistance to diseases is lower than at other seasons of the year. Lack of winter exercises and of fresh air impairs general physical fitness; winter overheating and bad ventilation probably injure the sensitive surfaces of the nose and throat. The frequent winter colds which follow, make children more liable to other disease. Finally, crowding and winter confinement make easy the transmission of disease from child to child.

Children's diseases, you see, are all "respiratory diseases." They effect our bodily apparatus for warming and moistening and inhaling the air. The bacteria which cause and which transmit these diseases attack the sensitive tissues of the nose or throat, the tonsils or larynx or bronchial tubes. These bacteria breed fast: they multiply till the mucous membrane and saliva teem with them. What then? Why, the child feels exactly as if he had an ordinary cold. And nobody—to our sorrow—is afraid.

But suppose the child hasn't got a cold. Suppose, as often happens, he really has scarlet fever. He sneezes or he coughs just like a child with a cold. And as we have ex-

plained in talking with you about genuine colds, each sneeze or cough projects a fine spray of moisture into the air. Every droplet in this spray is alive with bacteria. If these droplets are sprayed out into a crowded school room, some child is bound to breathe them in. A droplet or two lodges in the child's nose or throat. Or one child's saliva infects a half-eaten apple passed from child to child, or a pencil, a door knob, or a faucet that another child handles. Barring unusual resistance or immunity, that child in due time begins to sneeze or cough. The "cold" passes round and around from child to child; and first one by one by one, and then in batches, they are sent home and to bed with scarlet fever.

So it goes with measles too, and chicken pox and whooping cough, and all the list of children's diseases. The health authorities do what they can with quarantine. After the disease gets started, the children's houses are placarded; other children are warned away. This does good. But it is a little too much like locking the barn door when the horse is stolen. The real time to act is when the first case, disguised as a "mere smear" cold, runs its infected nose into the crowded school.

So we come back to the wonderful work done,—and waiting to be done,—by school physicians and nurses. They can stop these children's diseases before they begin. For these diseases are respiratory diseases, transmitted by the insidious method of bacteria-infected "droplets" sneezed and coughed and sprayed from the nose and throat. This means that children's diseases are spread before they can be recognized. But it also means that they can be stopped before they begin — stopped by the habits of good hygiene which school physicians and nurses are appointed to teach.

These habits of good hygiene include more than the use of handkerchiefs. They include more than keeping kids with colds at home. Resting on a clear understanding of the way respiratory infections spread, habits of good hygiene for children include washing their hands, after using a moist handkerchief, and before touching school books and tools or kindergarten toys. They include automatic avoidance of the common drinking cup. They include avoiding common towels as instinctively as one might avoid a "family" toothbrush. Failure to learn such habits spells epidemics. But acting on them means the automatic, sure and unconscious promotion of health.

School physicians and nurses teaching children to understand, patiently creating habits of good hygiene, skillfully stopping children's diseases at the stage when they look like colds:—school physicians and nurses, day by day and hour by hour, are doing their bit. The results may not show. But every case prevented means infection and possible epidemic nipped in the bud. Patient, continuous prevention, case by case, means hemming infection in. And so it means multiplying immeasurably the children's chances of good health.

Let us be slow, then, to criticize any seeming excess of prudence. Let us rather encourage the school physicians and school nurses to greater and greater care. Let us back up their authority. With our brothers and sisters and nephews and nieces,—with all your young friends and mine,—let us back up their teaching with all the intelligence and all the persuasion at our command. Let us train our own children in habits of health. And above all let us remember that apparently slight infections may be serious matters for our own children and for others. Doing this, we shall be taking our own right part in the best possible health work for children in the schools.

TEMPERATURE TAKING

Families who really can't afford to own a clinical thermometer are few and far between. Clinical Thermometers, which are especially made to test the bodily temperature, are simple and fairly cheap. You can buy a two minute thermometer,—that is a thermometer registering your temperature in two minutes,—for one dollar; a one minute thermometer, for one dollar and twenty-five cents; or a two minute rectal thermometer, made with an extra strong bulb to prevent breakage, for one dollar and thirty-five cents. Yet thousands, perhaps millions, of well-to-do families in the United States go without. The Mother is quite sure she can tell whether that child has fever or not, just by seeing whether he is flushed, and by feeling whether his forehead is hot or not. As for Dad, he knows he can tell about himself just by the shiveriness that goes with fever. So all these families do without the one simple instrument by which they can really recognize fever. And fever is about the simplest and most dependable danger signal on the railroad of health.

Your bodily temperature is a wonderful thing. No matter how cold or how hot the surrounding air, the body—by and large—keeps its own even warmth. Our bodily thermostats accelerate the burning of food to heat us, or increase the evaporation from our skin to cool us down, all so neatly according to demand that the balance is well nigh perfect. The same thing is true of animals and birds. Each species has its characteristic temperature; and in individuals of each species, the temperature remains even, despite outside heat or cold and storm. As for us, our temperature seldom falls much below the fig-

ure at which the human thermostat is set. It almost never rises higher except when we are infected with disease. And when the mercury does begin to climb, infection is almost invariably, so to speak, at the bottom of it.

Fever,—which is simply temperature higher than normal,—is a sign of battle. It indicates struggle between the outposts of resistance, and some horde or other of invading bacilli. You can't recognize fever by a flushed face or a hot forehead; a child often has both without a trace of infection or fever. You can't recognize it by shiveriness; you may be shivery with a normal temperature, or fevered without feeling shivery at all. You can recognize and measure fever with a clinical thermometer, and only with a thermometer. And so it is up to every family to own at least one. Often it is cheaper in the end to own two. For if there is only one in the house, you are likely to find it broken just when you need it most.

When you buy a thermometer be sure to get a good one. In Massachusetts, clinical thermometers are state-tested, and sold with a certificate in the case showing just how far each one varies from the standard. In states where they are not officially tested, buy thermometers with a similar certificate from the manufacturer. Be sure that your thermometer is accurate within one or two tenths of a degree; that is quite close enough for family purposes. And note whether your thermometer is a one, two or three minute instrument; that is, whether it is supposed to take one, two or three minutes to register your temperature.

In using your thermometer remember a few simple points. Don't take temperatures more than twice a day, morning and afternoon. If you feel compelled to take somebody's temperature, including your own, every hour,

you had better get along without thermometers. Don't take the temperature of a sick person until you have had either practice or supervision or both. Take a baby's or a small child's temperature by the rectal method. In this way you get the real temperature of the body; it is the only safe and sure scheme for extra-young humans. But teach every child, as early as may be, to hold the thermometer bulb under his tongue, and to breathe through the nose, with lips closed. Children taught early to "suck" a thermometer properly, save the family and the family Doctor a lot of trouble.

Wash the thermometer before taking a temperature, wash it in cold water, yourself. In the first place the Doctor is not interested in the temperature of hot water, which many cleanly persons always use to wash thermometers; and in the second place thermometers cost money, and hot water will drive the mercury to the top and break the glass. After washing your thermometer, shake the mercury down below 98 degrees. To do this, take hold of the thermometer near the upper end; and swinging your arm downward, stop it with a jerk. If you don't succeed by this method, bring your right hand, holding the thermometer, down against your left fist. In one way or the other, you can easily get the knack. When you see that the mercury registers less than 98 degrees, put the bulb gently into the baby's rectum; greasing the bulb with vaseline. With a child or a grown-up, put the thermometer under the tongue. Have the patient close his lips, but not his teeth. After four minutes by the watch for a three minute instrument, or three minutes for a two minute thermometer, take it out. Note the temperature on paper, if it is higher than normal.

Then wash your thermometer again, and put it away where you can find it next time.

When a child or a grown-up has a sore throat or a cold, or what seems to be a cold, take his temperature. When a child is irritable day after day, when he seems persistently fussy, take his temperature. And be careful to get his real temperature. Mouth temperatures have been thought to be one half a degree lower than rectal temperatures. This idea arose because people are apt to hold the thermometer loosely in the mouth, and to breathe through half opened lips; or the mouth was cool, perhaps, after a drink of cold water; or the thermometer was taken out of the mouth before it had time to register. Don't take a temperature within half an hour of the time that the person has taken food or drink. Taking the temperature shortly after drinking ice water or tea is too much like taking the temperature of the ice water or tea, rather than of the human being. When taking a temperature, then, be sure to get it correctly. When it goes above 99 degrees put the patient promptly to bed. Fever, as we have said, means infection; and infection causing fever requires care. Even a slight temperature in the afternoon, with normal temperature in the morning, may be a serious indication—especially if accompanied by loss of weight. In all such cases, — and in all cases where a temperature of more than 99 degrees runs on for more than a day, — call your Doctor. For you need what no amateur can supply; that is expert diagnosis.

While common sense requires every family to keep a clinical thermometer on hand, and to use it, we mustn't let thermometers lure us into a sense of false security. Temperature above normal is a sign of probable trouble. But normal temperature, — and this we must remember,

—guarantees us nothing at all. With a normal temperature, we may still have diphtheria, or an ear infection, or other maladies requiring just as expert diagnosis and care as diseases signalized by fever. A pernickety child, with no fever at all, may be suffering, for example, with kidney infection. Look out, then, for unexplained “moral” symptoms in children; they may easily have a physical cause. And as for ourselves, no mere temperature record of normal should make us neglect unexplained special symptoms or general mean feelings. Such symptoms and feelings should not be allowed to grow chronic; they should not be allowed to bother or worry us, without expert investigation. Indeed the bodily machine, even in apparently perfect running order, ought to be looked over at regular intervals. Get your bodily machine, and the whole family’s, thoroughly looked over once a year by a first rate medical man. That is the best health insurance in the market today.

But to come back to the question of temperature. While high temperature is a danger signal, and normal temperature proves nothing, a low bodily temperature often does real harm. It does harm by worrying people who don’t know that it is harmless. Babies with sub-normal temperature need special care; but adults are hardier. The so-called normal temperature, you see, is not such a solemn matter. It is an average, a convenient statement; but by no means accurate to a T. The normal temperature marked, for instance, on thermometers of British make, is two tenths of a degree lower than our American normal. Does that mean that every normal American is two tenths of a degree hotter blooded than those fellows across the pond? We doubt it.

Our own temperatures, while averaging even enough,

may easily sag below the normal. A long and careful series of observations has shown a slight "subnormal" temperature in average New Yorkers of a summer morning. And individuals with temperatures one half a degree, or even a degree, below "normal" are far from uncommon and quite as healthy as anyone else.

There are cases of hysterical temperature, high bodily temperatures connected with no sort of infection. But these are too rare for the average man to bother about. Cases occur where persons wanting to be recorded as sick, heat the thermometer bulb by rubbing it slyly on a blanket, or on some bit of rough cloth. There are cases, too, of thermometers that go insane; they suddenly, for example, register one hundred and ten degrees, when the patient's real temperature is only ninety-nine. Cases such as that will hardly occur in one family out of a hundred. When they do, the surprise will be quite enough to make that family check up their thermometer's mad lie; and keep two thermometers on hand for the next—and surely different—emergency.

After all, this matter of temperature comes down to the simplest common sense. It exempts us in no way from our regular duty of getting the best medical service available, (1), to supervise our general health, (2), to give us a periodic physical examination, (3), to look into symptoms or maladies that bother us in the intervals. Temperature taking is useful and necessary for this: When children seem fussy or sick, when grown-ups feel out of sorts, when anyone has a cold, or what looks like a cold, then a temperature record above ninety-nine amounts to an order. That child or grown-up must go to bed, and stay there,—if for nothing else than to avoid possible infection of others. If the temperature isn't back to nor-



mal within twenty-four hours, that, too, amounts to an order; call the Doctor.

If you haven't a clinical thermometer, get one. Use it with common sense. So used, it is an excellent servant; a reliable ally in keeping healthy. And what is that, but keeping able to live to some purpose?

WHEN TO CALL THE DOCTOR

When do you generally call the Doctor? If you aren't an exception, you call him too late. Most people call him when they are already too sick to go out, perhaps flat in bed. Now the best time to fight disease is when it is young and puny, before it has begun to get a strangle hold on you. The best time for the Doctor to get in his licks is almost before you know you are sick. The proper trick is not to call in the Doctor, but to call *on* the Doctor. Before you feel really sick at all, visit him; give him a fair show to nip your illness in the bud.

Many of us have already learnt a thing or two about medical service. A good many have even got to the point of going, now and then, to our carefully chosen, expert family Doctor, and asking for a general physical examination. But even those few are careless between times. Unless something serious drives us to the Doctor, we let things slide. We worry along. And, now and then, we keep going till too late,—just that shade too late to save us from long sickness, or perhaps from dangerous or even fatal disease.

Well, you and I, who mean to play safe in matters of health, must remember a point or two about medical service. And the first is the importance of weight.

It is easy to get tables of average weights, by heights and age, for both girls and boys, women and men. These tables, or charts, are handy. They may be significant. For if a child is seven percent below weight, or 10% above, for his height and age, possible trouble is in sight. The child should be taken to a physician who knows about children, for examination and for consultation about his diet, his hours of work, play and sleep, and his

general manner of life. That precaution, taken promptly, may save him years of poor health.

As for adults, weight is significant too. Progressive loss of weight, whether in children or grownups, especially when accompanied by slight fever in the afternoon, is a signal very dangerous to neglect. Over-weight in mid life and later is a danger signal too. Though it is set further ahead of coming disaster, we shall neglect it at our peril. Your prosperous man with the pot belly is a poor life risk. Your lean, wiry type should be striding across the earth's green fields, years after his fat friend's body rests beneath the grass.

Our next little point is pain. We must, of course, simply face some pain. It is up to us to grin and bear the kinds of pain whose cause we clearly know, and know to be harmless. The pain of a stinging blow, if no bones are broken, need worry no one. But pains with less evident cause, headaches, for instance, or backaches, if they recur and recur, or grow chronic, are symptoms not to be sneezed at. They may mean nothing. But the Doctor, not you or I, is the man to find out. Only the expert physician can decide what your special and particular backache really means, whether it be an infection between the vertebrae, or displacement of the sacro-ilyac joint, or one of half a dozen other possible troubles. A quack will tell you for certain that your headache comes from eye strain. Perhaps it does. But only the expert can decide whether your individual headache comes from eye strain, or from general infection or possibly even a tumor of the brain. Guess work and snap judgment spell peril in such cases. Pain, severe or protracted, is a warning. Don't run past it. For it means:—At your peril, get prompt and expert diagnosis; get expert care.

Temperature is another point to take note of. Fever, not mere feverish sensations, but bodily temperature above normal, measured by the clinical thermometer, is a clear sign of infection. We have said this already. So here and now, let us simply repeat: bodily temperature above normal says, almost in spoken words, "See the Doctor, Don't delay."

As for other suggestions of infection, sooner than we usually imagine it, they call for medical knowledge and advice. Mere "colds" and coughs, as you all know, may be the beginnings of any one of half a dozen respiratory diseases. The moment colds are accompanied by fever, call the Doctor. Even without fever, if they persist, get medical advice. If any sort of a cold or catarrh, especially if a cough, lasts as long as four weeks, see your Doctor. His service may not be absolutely needed. But on the other hand, his knowledge and advice may put you on the only road to health.

Our next point is this. Don't wait for evidence of positive illness, particularly in children. Take them to the Doctor when they simply are not well. People below par, people in low grade states of more or less depressed vitality, people whose color is poor, their posture bad, their temper irritable, such folks may not suffer from neatly ticketed disease. It is ten to one, nevertheless, that they need expert diagnosis, and expert teaching in the ways of right hygiene, before they can be well.

One more point. Remember that health is not only of the body. Body and mind work, each upon the other, so deeply that it is more than hard for either to be healthy if the other ails. We must not, therefore, neglect those troubles of the spirit which may have either a physical cause or a physical effect. A crying and irritable girl, for

instance, may be—and often is—suffering with pyelitis, an infection of the kidney. In cases, then, of nervousness, bad habits, haunting ideas, chronic loss of sleep, remember, for children and adults too, the importance of expert medical help. And remember that the physician, really expert in such cases, must know not only the body, but the soul.

With these few hints we have not, of course, begun to tell you all about when to consult the Doctor. These hints, however, suggest one more hint. Our normal bodily functions are so habitual that they drop below consciousness. We are hardly aware of them at all. When, therefore, they begin to obtrude themselves, look out for squalls. Without getting fussy or introspective, learn to note irregularities in the body's aspect or behavior. Learn to note them early. And if the reason for them isn't clear, and harmless too, go promptly to your Doctor. Your symptoms may be trivial. Never mind. You are right in bringing them to his attention. They may be the beginnings of disease. If so, you have given your Doctor a chance, first to cure your disease almost before it has begun, and then to learn something about the beginnings of disease. People, as a rule, delay so long that their Doctors haven't a fair show. With the best will in the world, they can get no experience with incipient disease. Go early to your Doctor. For in giving him a fair show, you serve yourself. Indeed you treble the chances of saving your own skin.

TONSILS

Every man, woman and child of us has tonsils,—or had them till some surgeon cut them out. But why do we have these little excrescences, one on each side of the throat? What are they for? In the long process of evolution were they developed just to give surgeons an extra job? Or also to promote, somehow or other, our physical well-being?

Investigators have reason to believe that healthy tonsils may help us fight the bacteria which get into our noses and throats. That is probably true,—possibly not. But whatever the function of healthy tonsils, the average tonsils in the average American throat often seem contrived exclusively to get us into trouble.

Germes of disease get into the tonsils even of small babies; very soon after birth their tonsils contain germs called streptocci, and other bacteria. Older children's tonsils are invaded in the same way. So are the tonsils of grown-ups. Indeed, if cultures could be made from the tonsils of all the 105 million people in the United States, it is more than probable that 105 odd million pairs of tonsils would be found to contain these bacteria.

Does this sound rather terrifying? It really needn't scare us, as long as we keep healthy; and as long as our natural resistance to disease remains good. Resistance, however, is a variable affair. It varies in any one of us. As long as it registers high, those streptocci and other cock-eyed bugs in our tonsils are kept easily under control. But when we get out of sorts or badly fatigued, or when our vitality is sapped by exposure, down goes our resistance. Then the bugs get out of hand. Then it's whoop and hallo for the streptocci, the staphylococci, the pneumococci, and all the other barbarically named bac-

teria roosting in our tonsils. What are the results? The results are, first, sore throat which we all know the feel of; and then tonsilitis which feels like sore throat twice two, and then some.

Tonsilitis is annoying. The sequels may be worse. Following often in its trail come ear-infections; ear infections, repeated again and again, go far toward producing deafness. Infections of the middle ear lead also to that dangerous disease called mastoiditis, at the base and back of the ear, — a disease often so grave that only the most prompt and skillful surgery can save the patient's life. In the trail of tonsilitis also come infections of the joints and of the heart. Bacteria from the tonsils get into the blood. The blood carries them to the joints; and rheumatism or more properly speaking arthritis, is the result. At the same time these bacteria from our tonsils may reach the heart valves; they may settle on a heart valve; and if they do they will deform it. Needless to say, the heart with a deformed valve is no longer an A-1 machine for pumping blood out through our system of arteries.

It begins to look, doesn't it, as if the Fairy Black Stick had come to all our christenings, and had given each one of us the magic gift of a pair of bad tonsils to plague us all our lives. But she didn't really. For thousands of people have high natural resistance; the bacteria in their tonsils average low in virulence; or by some combination of other factors their tonsils pester them seldom, or only slightly, if at all. Lucky are the possessors of these well behaved tonsils. But how about the rest of us—the many, many children and the occasional grown-ups whose tonsils are not allies or even neutrals in the fight against disease, but are traitors and enemies? How are we to know whether our tonsils are good or whether they are bad?

Well our family doctor will be on the lookout; and on the least suspicion that our tonsils are threatening trouble, he will study their condition. If he is in doubt as to a decision, he will have his patient's throat examined also by a first rate throat specialist.

How will the specialist determine whether the tonsils are a menace? He will decide on about this basis:—if a child is undernourished, easily tired, and generally out of sorts, then the specialist will probably condemn the tonsils. If the child has enlarged cervicle glands, the wise specialist will condemn the tonsils. If the patient has had tonsilitis again and again, the specialist will condemn the tonsils. When matter can be pressed out of the tonsils or when the tonsils themselves are large and obstruct the throat, then the specialist will condemn them without question. And in certain cases of disease, for instance arthritis, not sufficiently explained by other causes, the throat specialist, as consultant, may well find the tonsils guilty.

What then? Why, then, our very best bet is to accept the specialist's advice and to have those tonsils removed. Do it promptly. Except when the patient's state of general health is poor, delay can do no good, and it may do serious harm. Take for instance the case of an eight year old girl whose tonsils were examined at school by an excellent throat specialist, and condemned. These tonsils did not seem seriously diseased; the little girl was doing well in school; on the whole it seemed best to wait a while. What happened? Within a few months that child had a middle ear infection, followed by mastoiditis. A successful operation was performed. But the cost in suffering and in surgeon's bills was a thousand times worse than the possible cost and trouble of removing those tonsils in the first place.

Tonsilectomy—the operation for removing tonsils—is after all a relatively safe and simple matter. With the art of anaesthesia as highly developed as it is today, and with the technique of tonsilectomy close to a hundred percent perfect, we need only make sure that the operation is performed by a really good throat specialist in an A-1 hospital. Under these conditions the danger is almost nothing. Too early escape from the hospital care is really the chief risk; and the results of the operation are practically sure to be good.

Here is a true story. There was once a hospital, not one thousand miles from Boston. When this hospital was first opened it took in a great many under-nourished city children. Nearly all had diseased tonsils. As the operating room was not quite ready, the removal of these tonsils had to be postponed. In the mean time the children were given complete open-air treatment. A few weeks later, when the operating room was ready, the children had so improved that only a few of them had to be operated at all. The moral is obvious. If it were not for our indoor life in unventilated houses, school rooms and offices, under continual exposure to colds and other infections, only a small percentage of us would have tonsils that required removal. As sensible people, then, we ought to live as much as possible like the children in this true story,—as much as possible in the open, as much as possible in fresh air.

And now for a final word of advice especially for indoor people. With tonsils as with habits, in case of doubt cut them out. Before their bugs get you, get those tonsils. They say, a stitch in time saves nine; but a slice in time at the tonsils may save years of disease; and better still may put us on the road to health and usefulness.

KEEP A GOOD HEART

When a disease is constantly mowing down the population, and when that disease is largely preventable, the public should know it. Disease of the heart holds the record for killing. The war wasn't a patch on it. In a year and a half, shells, bullets, bombs and gas killed less than seventy thousand Americans. Heart disease, each year, kills some one hundred and fifty-five thousand.

Probably two million of us have heart disease to-day. In draft and camp examinations, the Army Medical Officers rejected, for serious heart defects, 2% of the men examined. Those were young fellows. In the schools, things are almost as bad. In New York, for instance, examinations show that 1 1-2% of the public school children have serious heart defects. In Boston and throughout the country about the same percentage holds. Do you see what that means? It strongly suggests that three-fourths of heart disease among men of military age begins in childhood. That is significant. For it points out a broad road to prevention.

One great cause of youthful heart disease is rheumatism. St. Vitus dance is another. Unlike much of the so-called rheumatism of mid life and of old age, rheumatism in children is not a mere symptom of other disease. It is a definite infection. So-called "growing pains" in children sometimes mean rheumatism; and children suffering from such pains should be taken promptly to a competent physician. It will generally be found that they are in need of treatment, both to eradicate the cause of rheumatism, and to prevent serious after effects.

Rheumatism, or arthritis, may follow scarlet fever or pneumonia. The patent medicine ads gabble about uric acid as a cause of rheumatism. That is sheer bunk. Decayed

teeth may have something to do with it: proper diet and good care of the teeth may help. Much more often the bacteria which enter the blood and infect the joints come from diseased tonsils. The removal of diseased tonsils is a real measure of prevention. It prevents much rheumatic infection; and so prevents many cases of heart disease. But neglect of infected tonsils leaves the way clear for rheumatic infection of the joints, and for rheumatic fever. And in at least one case out of four, inflammation of the joints or rheumatic fever means damage to the valves of the heart.

Damage to the heart results also, of course, from other causes. A certain very serious disease which the rules of polite society forbid us to name, — that cause of partial blindness, of deafness, insanity, general paralysis and death,—also attacks the heart. Early, skilful and pertinacious treatment makes complete cure not unlikely, and it greatly reduces the risk of injury to the heart.

In general, the physical well being, the vitality which goes more or less with resistance to infection, helps ward off disease of the heart. In children, under-nourishment tends to lower resistance. In grown-ups, the sedentary life plus too much food and minus a sufficiency of sleep, works in the same way. Bad hygiene means lowered resistance; lowered resistance, often, spells trouble with the heart.

Still, for you and me, if we are sensible, the risks are small. There are perhaps fewer cases of real than of imaginary heart trouble among us. Physical strain, for instance, is far less risky than it is pictured. If we aren't utterly untrained and flabby, we can exert ourselves to the point of fainting—and beyond — without risk to the heart. But from any and every cause, or without appar-

ent cause or reason, we may have all manner of so-called heart symptoms,—pain under the left ribs, an irregular heart beat, shortness of breath, fainting,—a whole bunch of disquieting sensations. But every sensation suggesting heart disease may easily result from some other cause,—indigestion, for instance, or so-called “nervousness.”

Don’t lie down under imaginary disease. If you have symptoms that feel like heart disease, get yourself examined by a first class physician, one who can’t be fooled by one of the frequent hearts that sound queer, but are fundamentally O. K.

Though the risk for you and me is small, remember, please, that it’s the biggest risk in sight. One hundred and fifty-five thousand people dying from heart disease each year is a serious matter. Two million people in the country with defective hearts to-day, that too is a serious matter. But looking at it broadly the problem is clear. Half the trouble begins among children, in school and before they go to school. By good general hygiene, and by the removal of diseased tonsils, a great deal of this can be prevented. Forget yourselves. Look out for the children. Insist on the best, the very best, care for them; and much of the problem of adult heart disease will take care of itself. Many of those one hundred and fifty-five thousand a year will stop dying of heart disease. Their hearts won’t be diseased. And they will live longer; and live, let us hope, to good purpose.

VACCINATION

Among the mysteries and the unsolved problems of medical science there are, thank heaven, a few certainties,—certainties which are absolute and which work for our good. We know, and we needn't be squeamish about saying that we know, that quinine is an antidote for malaria; or that Pasteur's vaccine against rabies prevents hydrophobia, and even cures it in its early stages. With equal certainty we know that vaccination is a strong defence, and our only defence, against the devastating disease of small-pox.

We have only to glance back to see the horrors from which vaccination has saved us. Through the middle ages and into modern times, small-pox not only swept across Europe in terrific epidemics, it was so constantly present that men literally hadn't half a chance to escape it. In London in the 18th century, adults without pock marks were far to seek. In Boston, Massachusetts, in 1701, people died from small-pox at the rate of 43 per thousand; and in 1721 the rate rose to 77. In other words, small-pox in that year killed five times as many people per thousand as all our diseases and accidents combined. And it did not stop at killing people; it left its victims disfigured and many of them blind. Nowadays blindness from small-pox is unknown in Massachusetts; before 1900 the small-pox death rate had fallen below one in 100,000; as for epidemics of the disease, most of us imagine that nothing can ever bring them back.

What has wiped out this terror of the past? What has wrought a change which, to our ancestors, would have seemed miraculous? One thing and one thing only, vaccination. And this is how it came about.

Back in the 18th century, dairymen infected from sores on the udders of their cows, noticed that they had nothing to fear from small-pox; they passed through epidemics unscathed. From experience to experiment was but a step. In 1796 Dr. Edward Jenner developed the earliest method of vaccination. In 1800 Dr. Benjamin Waterhous of Boston infected his small children with the virus of "cow-pox," a mild disease but analagous to small-pox. Then fearlessly, though to the horror of the sceptics, he sent these children of his into the small-pox pest-house. There they stayed, and but for their vaccination, would infallibly have caught the disease, and very likely died. They neither caught it nor died; like the dairymen, they came out as they went in, unscarred and unscathed.

From that day to this, there has been progress in technique. Then, vaccination carried with it that risk of infection with one or another human disease. Nowadays, vaccine can be manufactured in the United States only under a rigid system of government control. In Massachusetts, we go a step further. The Commonwealth manufactures its own vaccine in its own special laboratories, and distributes the vaccine in sealed tubes to the physicians using it. Infections, except those sometimes caused by patients scratching their own vaccination marks, are unknown in this state. Our vaccines are not only efficient, but absolutely pure.

Without law and good administration of law, vaccine could not have eliminated small-pox. From 1800 to 1837, when vaccination was compulsory, the small-pox death rate in Boston came down to three per 100,000. In the next 18 years the rules were relaxed, and the death rate rose to 46. Then came 16 years with good laws badly

administered, and an average small-pox death rate of 52. That was too much. Massachusetts created its State Board of Health; the laws were enforced; and in the next 28 years, up to 1900, the rate fell to less than one.

There are folks who will tell you that vaccination had nothing to do with it. Small-pox, according to them, died out of itself. It is a queer coincidence that when vaccination went out of fashion, the deaths were multiplied seventeen times; that with careless law enforcement they went still higher; and that with thorough vaccination the deaths were cut down and, for 28 years, were kept down to one fiftieth of what they had been in the bad old days.

Is all this mere, queer coincidence? People like you, progressive people familiar with scientific progress, hardly need to be told that it isn't. Yet the general public has grown careless. And if half the men at Harvard, for instance, have never been vaccinated, it isn't, perhaps, surprising. Two generations of immunity have made us forget.

But if we forget, small-pox remembers; it lies in wait, it creeps ahead at every opportunity. Here in Massachusetts our carelessness has more than doubled the small-pox death rate in the last twenty years. In 1917 local outbreaks occurred in Worcester, Fitchburg, Shrewsbury and Webster; and in 1915 at New Bedford there were 23 cases, of whom ten died. That isn't many. But does anyone of us want to join them?

We in the eastern states can still thank God that we are not as other men are. In six of the central states, where they are more careless, the rate has been going up for the last five years. Now, they have 43 times as many cases as we. But travel is free and frequent between the

states. If we wish to avoid contagion, it is up to us to take care. In vacation time many of us go to states and countries where vaccination is not enforced; and many people come from those states and countries to Massachusetts. Now is the time to take care.

One small vaccination scar means seven to ten years immunity from one of the great scourges of mankind. Only vaccination can bring this immunity. People going away from home should be sure that they have it. All school children should have it. Their safety depends on vaccination. The law requires vaccination. See to it that the law is upheld.

MENTAL HEALTH FOR CHILDREN

Eight year old Margaret was passing tea to a visitor. A door slammed. She dropped the cup, and broke it. Her Mother sat with both hands pressed to her head. "Margaret," she said, with a touch of pride, "is all nerves, just like I am." And in her daughter's wide-eyed presence, she finished the gruesome recital of her recent surgical operation.

Such Mothers as Margaret's, who are nervous and excitable themselves, expect their children also to be nervous. Such Mothers, and many school teachers, too, should learn about preventing nervous and mental disorders in children, and especially about keeping the good mental health with which we are usually born.

It is now recognized that much adult nervousness, most adult nervous breakdowns, and even some cases of so-called insanity, really arise in childhood. Especially true is this of "nervous" people with all sorts of vague physical complaints for which no physical cause can be found. Children, often quite unconsciously, copy symptoms from their parents or relatives. Thus, for instance, a boy of six complained of pains in his knees, of "heart trouble," shortness of breath, etc. The Doctor made a thorough examination, and found him in almost perfect health. His father, however, was a chronic nervous invalid; he had so-called "rheumatic pains," palpitation of the heart and "nervous indigestion." He worked little, and was much fussed over by his wife and mother-in-law. The boy had patterned his troubles after his father's symptoms, and was well on the way to becoming the family's second "nervous invalid."

Mental and nervous upsets do not always begin in the

mind. For mental and nervous health is part and parcel of general health. Physical illness often brings mental trouble in its wake. Children, for instance, are often spoiled during illness; and illness itself often disturbs their normal stability. Good physical health and habits of good hygiene are the foundation of mental health in children as in adults.

Keeping children in good mental health also requires knowledge of certain other rules which are perhaps familiar, yet often neglected. Among these rules for maintaining good mental health are the following seven:

(1) Children should be given varied and ample outlets for their natural instincts and impulses,—to be active in play and work, to sleep long hours at regular times, to express their emotions, and not merely assert themselves, but to serve other people and join in other people's work and play.

(2) Children should be trained to control their impulses and activities. Natural and helpful self-control is not repressive or forcible, but indirect. We can control one muscle by contracting an antagonistic muscle; we limit one action by starting another, one interest by developing other interests; we stop thinking of one thing by thinking of something else. Direct repression short circuits a nervous reaction, and dissipates energy within the nervous system itself. In self-control we can often supplant an undesired impulse by using its nervous energy for new and healthful activity.

(3) Concentration. Children, like the rest of us, are quite capable of keeping their attention on a single train of thought. They naturally do only one thing at a time. They should be taught along these lines. When teachers need to transfer a child's attention from play to some scholas-

tic interest, they should take care not to weaken the child's natural habit of concentrated attention.

Lesson periods, not too long for the children's normal capacities of attention, no dawdling, complete attention: during work time, this should be the rule. While developing the children's power to work for more distant ends, their attention should usually be focussed on the present. They should be taught to live one day at a time, to settle their normal accounts every night, never to nurse a grudge, never to let the sun go down upon their wrath, to think of each new day as really new, and not to carry into it their troubles of yesterday.

(4) Orderly association is the next condition of mental health. In all instruction and training, parents and teachers should avoid confusion and interference of association in the child's mind. Disorderly association means the beginning of mental conflict and worry. All tasks for children, therefore, should be simple and definite. All directions should be given clearly and one at a time. Children should be led to make all their decisions straight-forward, all their actions whole-hearted. For it is only by such teaching, decision and action that orderly mental habits can be developed.

(5) The fifth condition of mental health is an active attitude in the face of difficulties. The trying situations of childhood—"when a feller needs a friend," the times of worry, of fear and of rage, are just so many chances for important training. Vigorous action is normal, Repression may cause nervous strain. When a child is scared, for example, he will naturally act in one of two ways: he will either run away from his object of terror, or he will turn and attack it. To attack, and not to run, is morally better, and usually safer and more healthful. By trying

always to do the best thing when in difficulties, children help to form habits of the utmost importance to mental health.

Both in success and in failure children should be encouraged. But success, we must remember, is itself encouraging. Hard tasks set before children and hard conditions surrounding them must be tempered to their capacity: they must be made to offer a fair chance for success. For success, hard won but real, breeds courage.

(6) Normal social relations are the sixth condition of mental health. It is better for a child's mental health to eat and play, work and study with other children than just alone, or with adults. Every child, of course, must have a decent amount of solitude to make his own judgments and to dream. But every child also must act with other children, whether as follower or leader, to serve, to cooperate, sometimes even to fight. The only child in a family, and children who do not join in heartily with their schoolmates and playmates, should sometimes be given special training.

(7) A normal sense of dependence is the seventh condition of mental health. Not only religion, but sound psychology, demands some sense of dependence on a Supreme Being, on the laws of the universe, on the authority of duty, or on one's sense of honor, absolute and worth while for its own sake. If not tampered with, this sense seems to develop normally in children, in the form of dependence, first on one's parents, later on something higher. Our duty here is chiefly to leave the child's feelings unmolested, and never to cast any reflections on his parents, on his religion, or on his sense of duty or of honor. The shrine of his moral life is sacred.

These seven rules are fundamental in teaching mental

health. Physicians use them in helping the feeble-minded and the mentally disordered. We should not deprive normal children of the same mental training.

It is worth while, then, to state them briefly once more: give children ample chance to express themselves, to serve, to share in other's lives, to work, to play and to sleep. Teach them, not self repression, but normal self control. Don't spoil their natural concentration; but help them to concentrate freshly on the life of each new day. Be clear and definite with children; help them to the straight-forward decision and the whole hearted action which lead away from worry to orderly mental life. Encourage children when in difficulty, worry or fear; encourage them to face the facts with vigor. Give them every chance to get together with their fellows; and finally hold their moral and religious life as sacred as any adult's.

To state these principles is easy, to practice them infinitely hard. To practice them in training children, is a challenge to the greatest teachers. For a parent to do this, demands more than constant care and effort; it demands constant self-control. For healthful mental and moral fiber is built up by a child's own effort, not through repression by adults. From parents and teachers, it requires suggestion rather than demonstration, example rather than exhortation, sympathetic guidance rather than blame.

All this is on the positive side! On the other side, bad habits of association must of course be avoided. When this has been achieved, let us remember how important to mental health are proper alternation of work, rest and sleep, and normal habits of good general hygiene and the best attainable bodily health.

PART II.

THAT TIRED FEELING

No man that's worth his salt, and no woman either, is afraid of work. Why should he be? Effort, labor, honest toil are harmless. What's more, reasonable and successful work, work that we can be proud of, is actually good for us. Why, live men eat it up. And they thrive on it. For work, at its best, makes for happiness and health.

But work at its worst is an invention of the Devil. Work forced and meaningless, complicated, monotonous; nerve-racking, driven work, without break or rest; work in din and confusion, glare, extreme heat, or vile dead air,—such work as that not only makes “bad blood” among the workers, it makes the blood of each individual worker literally bad in his veins.

The man whose arrogant physical force makes him accept the twelve hour day in a steel mill, hold to it and defend it as a “he-man's” job, that big fellow scoffs at the up-lifter who calls it a “living hell.” And he would scoff now, if he heard some Health man talk of fatigue-products poisoning the blood. But facts are facts; the proof is stubborn. In mills, telephone centrals, offices, the Health man has studied fatigue; has noted, measured, tabulated its results. He has tested tired blood from tired men's veins, and compared it with blood from men who have rested. And to nail down the proof and copper-rivet it with conviction, he has made tired dogs frisky and frisky dogs tired,—all in less time than it takes to wag a tail,—and simply by swapping large doses of the two dogs' blood.

Now when we gay dogs, you and I, get weary, “that tired feeling” simply says “Stop.” It is a danger signal.

It means that our blood is poisoned, and that we should rest till the healthful processes of the body can neutralize and eliminate the products of fatigue. If we run past the Signal; if we work right on without change or rest, our blood is completely filled with fatigue products, called toxins, which it carries to every part of the body, including the nervous system and the brain. The most sensitive parts of us, whatever they happen to be, are the first to suffer. We have a backache or a headache, indigestion or pain in the eyes. If we go on, scanting rest, sleep and recreation, and piling tiredness on tiredness, fatigue on fatigue, we shall be sad dogs in the end. We shall be chronically exhausted, irritable, unhappy, and an easy prey to infection, first by common colds, and then perhaps by the more dangerous forms of general diseases.

All this is needless. To take the curse of chronic fatigue from our work, we have only to choose our jobs and to handle them, with common sense and just a grain of foresight.

Now the first lesson of Common Sense is that no general rule can hold. While eight hours work is certainly enough for the average man in the average industry, every individual must judge for himself. Seven hours at a compositor's desk may be enough to poison Mr. A.; nine hours at the very same job may be meat and drink to Mr. B. With just a little attention to fact, we can each find out what our natural limits are. Those limits, of course, will vary with different kinds of work and in contrasting conditions. But while work in ideal surroundings is far to seek, you and I can usually get a job that pretty well suits us, in conditions that seem fair. With a job like that we can make good. Making good at the job, we take pride in it; and that pride saves wear

and tear. If we work with pride, without strain, and with a decently restful gap for lunch, we can put through our work, and be fresh—fairly fresh—at the day's end.

If, on the contrary, we are badly tired, let us look candidly for the cause. Our fatigue may be due to work. But then again it may not. It may be due to too little sleep; it may be due to improper food; it may be due to foolish recreation. If we use our spare time to rack the bodily machine with reckless joy riding, even perfectly adapted work in ideal surroundings will tire us out. Don't blame the job for that. The job is quite innocent of your Monday morning grouch.

Make a habit, then, of reasonable work; and balance it with sane habits of rest and recreation. Do this, and "that tired feeling" will cease to pursue you. You will no longer accumulate the poisons of fatigue. And if good habits of work and rest and recreation do not make you at once a miracle of strength, they will make their sure contribution toward happiness and health.

SPARE TIME

A man's body is a machine. True enough. But a man is more than that. He is conscious. He has thought and feelings. But while machines can run, day in and day out, without pause or rest, man himself can work only in spells. Sheer work, too long drawn out, poisons us with the toxins of fatigue. We may get a sort of second wind, and work on for a time. But the fatigue accumulates. On pain of exhaustion, we must stop; we must balance and cure our fatigue with change and rest. The need of ours is absolute; so essential that our race has embodied it in the age-long habit of sleep; so evident that the very state has crystallized into law our demand of one day's rest in seven.

To achieve our best, even in business, we must have our night's sleep and our Sunday's rest. Sleep missed one night, should be made up the next. Sundays stolen for work, should be made up within the week. Neglect of these rules is hygienic crime; it brings its own sure punishment in impaired efficiency, in diminished life! If we are really to live, we must find, not only on Sundays, but on every day of the week, spare time for change and rest.

How much spare time must we get? That is an individual question. The answer depends on our make-up and our job. If we are healthy in mind and body, if our work is broken with welcome interruptions, if it is congenial and successful, we can manage with less spare time than otherwise. But after all, for most of us, it isn't a question of how much spare time we ought to have. We are face to face with conditions; so many hours of work; so many hours of necessary sleep. The space between is all that we can get for going and coming, for meals, for recreation. And this minimum of hours which

we call spare time is so cramped that we must be canny indeed if we are to get what we need from it.

Change brings a certain rest. But there is change and change. Mere shifting from one sort of work to another is helpful; but it can never quite fill the bill. Real change, for the body, means bringing unused muscles into play, while resting the muscles tired by work. Real change for the mind, means fresh interest when benumbed with monotonous labor; it means lightness, gayety, a spirit revived, when tense with responsible judgment and decision. Each of us must choose the type of change he needs; the manual laborer, play for the mind; the executive and office worker, muscular play,—tennis, squash, golf, hoeing the garden or even chopping wood. He needs mental variety too,—good stories, or essays on subjects not his own.

The change which brings rest is far from dissipation. Shifting from diversion to extreme diversion, and from excitement to excitement serves only to gloss over a deepening weariness. The change which regenerates, is moderate and regular. The game which we play again each day, the reading which we take up each evening at the place where we left off,—these recreations have a familiar charm. Their continuity is restful. It is immensely worth while, then, to get on intimate terms with something beside our work. Take the hint. Gain skill in some game. Learn really to know a favorite subject, a congenial author. In a word, have a hobby. And make a habit of riding that hobby. No daily exercise can refresh you more.

Change is by no means the last word in balancing fatigue. For rest may be found directly too. In our keyed-up civilization, it is useful to pause, now and then, and

seek something better than our passing moods. We are apt, too often, to be hurried and worried. Our thoughts too often are really not our own; they are seized and possessed, willy nilly, by unfinished tasks, by difficulties and bothers, by a sense of rush. Our attention, in short, is caught up and whisked about, in quite fantastic fashion. Why? Just because we have no habit of controlling it. The remedy is simple. Daily practice, first in ridding ourselves of vagrant notions that chase each other across our consciousness; practice in deliberately cleaning out the mind; then practice again, in calling up serene and deliberately chosen thoughts. Such practice, even for a scant ten minutes, two or three things a day, brings refreshment and well being quite out of proportion to the simplicity of the means employed.

As we have said already our spare time is usually far too scanty. We must use it the more cannily; steal leisure, in the trolley, from the newspaper futilities assailing our eyes; catch it by the tail, as it escapes us after lunch; domesticate the shy pet before dinner. Or to put the idea in other terms, we must drive, each day, into every crack of time, the thin edge of the wedge of change and recreation.

Yes. Each day, and all the week, we must be miserly indeed. But at the week-end, what a change! Then we can deal almost carelessly with play and with peace. The change which we must organize on so minute a daily scale, we can revel in, now. On Saturday afternoon and Sunday, we sedentary folk can get away in pairs and families and gangs, to walk over autumn hilltops, or in winter, skate along smoothly frozen rivers. All nature is ours, and the best of civilization. We can dance and swim: we can venture, in libraries, through far realms of imag-

ination. In body and in mind, we are free. Let us hold to this weekly freedom. To surrender it, is to domesticate the demon of fatigue.

The carefree contrast of our best week-ends, is all to the good. But we need more than free play. The fathers who founded this civilization of ours, could not and did not foresee all its growing needs; but they saw beyond their own day, and beyond ours, in founding and maintaining their one day's rest in seven. At least once a week, we need more than a loll or a frisk. We need the reassurance of looking beyond our daily horizons; contemplating in all sincerity, those visions of immaterial truth in which, in many varying ways, we all somehow believe. There is no substitute for this refreshment, this rock bottom of peace.

Now to come back to every day. We men, as workers, are limited by fatigue. If we don't have a care, we shall be subjected by it. The antidote for fatigue is rest; rest in the widest sense, including play, sleep, peace of mind. On pain of of chronic poisoning, we must get these things. How? Buy them, buy them with spare time. We haven't much of that. Let's use it sparingly, with our best intelligence. So used, it becomes the elixir of life.

EXERCISE

Don't be a clam! A clam may seem wise and calm to himself. To the rest of us he seems chilly, and shut in. You have to steam him to make him even open his shell. Human beings, to live at all, must express themselves, by exercising their brains and their brawn. Even the teeth need exercise. If they don't get it they are the more likely to decay.

Children, who crave much more exercise than adults, are almost constantly in motion. But adults find it increasingly hard to get even the little which they must have. As the draft showed us, 40% of our young men were unfit for military duty because of physical defects,—defects which might generally have been prevented by proper hygiene and exercise. By planning and determination, all of us really can find time for the minimum of necessary exercise. That minimum, for the average sedentary worker, is (1) daily exercises indoors; (2) moderate exercise daily in the open air; and (3) a bout of vigorous exercise once a week.

The indoor exercises may be taken in the morning, after a cool sponge bath and in cool air, before dressing. ten minutes of free movements of the abdomen and chest, such as those described by Walter Camp, furnish a good start for the day. For outdoor daily exercise, half an hour's walking will do. The weekly bout of lively exercise should be vigorous enough to keep our blood vessels springy. It may be measured by the perspiration which results. If a fast walk leaves our skin still dry, we should take to skating or running,

For young people, this minimum program is sinfully tame. If we are hale and hearty, we should aim higher.

Yet our exercise must be sensible. And it ought to be pleasant. Dull exercise is better than none; but social exercise rejoices both body and soul. Thus golf and tennis and hockey eclipse the solitary rowing machine; and swimming, in which man vies with the very nature of the friendly water, is a gift of the gods.

Violent exercise is less dangerous than people think. Fainting, like an automatic brake, stops all exertions before they can damage the heart. But exercise may easily be inopportune. Thus dancing is often unhygienic, because it causes loss of sleep, and because it is taken in close and dirty air, and at hours when we are tired. Exercise taken when we are physically tired, makes the muscles produce poisons of fatigue. And these poisons are so real that, when injected into a fresh animal, they make him spiritless and dull.

Some people thrive on less exercise than other folks need to keep them warm. But many of us are apt to take too little. Now too little exercise means obesity and constipation. But regular and sufficient exercise takes the sluggishness out of the bowels. On a proper diet, it takes pounds from the fat man, and puts pounds on the thin. It conduces to habits of regular sleep. It harmonizes the whole development of the body and the mind.

Exercise is an excellent habit. We should not drop it suddenly. If we do, our bodies will probably rebel. Neither should we dive into it, head over heels, as fools dive into a debauch. If we do, the body will probably resent it, with muscular pains. We should make exercise, like sleep, one of our most solid habits. Try it. Make it part of your very life. And exercise will repay us handsomely, both in physical well being, and in mental drive.

SLEEP

Sleep is even more necessary than food. Few of us would be hurt by fasting a few days; we should live on our reserve of bodily tissue. But we have no reserve of sleep. By going without that perfect form of rest, we accumulate fatigue; we sap the vitality which is our defense against infection; we make ourselves susceptible to various grave diseases, and to that nuisance, the Common Cold.

Edison is said to sleep only four hours out of the twenty-four. He has found, by experience, that it suits him. But you and I had better not imagine we are Edison. Many of us, especially the thin and nervous, need, not less sleep, but more. Skinny people, if too active in proportion to their sleep, may impair their nutrition. Nervous people, deprived of sleep, are all the more subject to that evening trick of the nerves, numbing the sense of fatigue. Don't be fooled by feeling "wound up." Judge your need of sleep, not by your unreal freshness at night, but by your condition next morning. If you find yourself sleepy, and fussy about breakfast, go to bed half an hour earlier each night,—till you wake up brisk and hungry. That will determine your proper average of sleep. Stick to it; make a habit of sleeping 7, 8, 9, 10 hours a night—whatever you yourself need; and establish that habit as firmly as your habit of eating three times a day.

At times we need extra sleep. After intense effort or emotional strain, the healthy man has a sleep-hunger, which is far more trustworthy than the hunger for food. A hungry man may eat himself sick. But the sleep-starved man surrenders himself to sleep with impunity. For example, an aviator in 1918, after a miraculous escape from

death, dropped into a sleep that lasted twenty hours. Few of us have experiences like that. But even in our peaceful lives we need some leeway of extra sleep.

The mean and worried sleep which we call insomnia, very often results from mental or nervous fatigue; and that very fatigue is increased by lack of sleep. The result is a vicious circle; nervous fatigue, insomnia, more fatigue, more insomnia, and so on and so forth and so on. The only way to get out of the circle is to break it; to work less; and to play more; and to rest. We can rest very well, even without sleeping; and once rested, it is ten to one that we shall drop back into our normal habit of good sleep.

Some few people exercise or work so little that they aren't tired enough to sleep. But when you and I can't sleep, it is generally because we smoke too much; or drink coffee and tea at times which do not suit us; or cram our poor stomachs; or try to sleep in a stuffy room, or with cold feet or a cold back, or with minds full of worry,—or the fear of missing our sleep. The remedy, of course, is to reverse the cause; give the mind some quiet interest; read a chapter of a favorite book; calm the body with a neutral bath; go to bed warm with a hot water bottle at the feet if necessary and in a room with open windows and a good circulation of air. Then we should rest and forget our worries. If sleep comes quickly, so much the better. If it delays, we should remember that rest, even without sleep, is comfortable. This very recollection may bring us peace, and sleep.

Perhaps one man in a hundred, in search of sleep, is tempted by drugs. That temptation is of the devil. Only on the advice of a *good* Doctor, and only in emergency or the acutest pain, can we safely accept such relief,

In the average case, common-sense is the best guide. And Common Sense sums up this way;—Find out how much sleep you need. Make a habit of sleeping at least that much. Get the best sleep you can; and be thankful.

CLEANLINESS

Even if cleanliness is not next to godliness, it makes us feel good to clean up. We enjoy feeling clean; and we enjoy it so much that most of us don't even ask whether washing also helps keep us healthy. Cleanliness is so pleasant that we hardly need other reasons for using soap and water. Yet there's something in it, too, from the health point of view.

We need exercise; those of us who are well and strong need hard exercise at least once a week. After hard exercise, or at the end of a long day, what is more tonic than a bath! Every sweaty pore of the skin is refreshed; and after a rub-down, the whole man—or woman—feels remade. That agreeable sensation means rest; it forecasts an enjoyable evening meal, better digestion, better sleep perhaps, and that general well-being which counts for health.

We like cleanliness; we instinctively avoid filth and filthy people. Does this instinct of ours help us keep healthy? Extremes of physical neglect seem to promote skin diseases; they certainly provide a home, in the hair, for that particularly annoying trouble—impetigo,—which is far too common in our schools. Extremes of neglect also mean a welcome to lice; and in Eastern Europe, as we all know, lice have spread the scourage of typhus, from which we are still free.

But here at home, and from you and me, what does health demand in the way of cleanliness? It demands at least two things: clean hands and clean clothes.

Our fingers come in contact with more bacteria than we can imagine. From a common towel they may carry off trachoma "bugs". Then, if we rub our eyes, those

bugs may start a disease which means suffering, and failing expert treatment, loss of sight. Or take the case of an apparently well school-boy. He blows his nose; his fingers pick up the germs of measles which he will "come down with" next day. Now suppose that boy hands an apple to his chum. Ten days later, that chum may come down with measles; and everyone will wonder why.

Our fingers come in contact with numberless things; and innumerable are the germs which they carry off to the eyes, the mouth, and the face. Our bodies, luckily, can resist most of them. But for all sorts of unforeseeable reasons, the body's resistance weakens now and then; and it becomes more susceptible to some "bugs" than to others. Self protection demands that these germ-gathering, germ-carrying, germ-distributing fingers be kept clean. They need washing, lots of it. Especially before meals, wash those hands! And wipe them on a towel that's free from the other fellow's "bugs". After washing your hands well, wipe them on an individual towel. If you don't, your fingers are only too likely to transfer the other fellow's bacteria to your food; and you may come down with influenza, colds, typhoid, diphtheria, any and every disease that is waiting to start an epidemic,—or to catch just you.

So much for clean hands. Now how about clothes?

There is no reasonable doubt that rowing drawers, used and re-used again and again, make a home for that common "bug" with a big name, the staphylococcus aureus. That "bug" when he gets rubbed into a scratch or abrasion of the skin, starts the boils and carbuncles which make rowing men often so like Job, even if less patient. And boils, by the way, are highly contagious. Not only do they pass from man to man, they are often transplanted

on the same man's or woman's or small child's body. They seem actually to jump from neck to knee, or from knee to arm, if they are not kept from every contact with the hands or clothes. One man—we know him—had six successive boils, till a surgeon kept them covered, and had the man's underwear boiled. Or they start, perhaps, with a "stye" which makes you rub your eye. With the same fingers, you unconsciously scratch or rub the back of your neck. Your stiff collar continues the process, and soon you have a carbuncle—and a surgeon's bill that makes your eyes stand out of your head.

While stiff and scratchy collars may help start a carbuncle, collars at least have the advantage of being fairly clean. They get washed. Less can be said for the furs which the fair sex drape across their bare necks. If one hair of that fur were drawn through a drop of water; and if one of those ladies were to look at that drop through a compound microscope, what would she say? What wouldn't she say? Lord knows. But at least we may be certain about what she would do. She would hurry to her bath room. She would take a vigorous scrub.

Then,

Scrub, ladies, scrub
With suds and care;
Scrub to the roots of your winding hair!

And,

Wash, boys, and rub;
Of bugs beware!
On unwashed fingers they make their lair!

Ladies and gentlemen, in all candor, while dirt favors certain diseases, soap and water are not a cure for all bodily ills. But cleanliness, is pleasant; it helps towards health. Here's to cleanliness, then, both of body and of mind.

WATER

Why drink so much water? Many people have asked this question, because they want to get thin, or because they are annoyed by perspiring, or both. They hope to achieve a willowy body with a conveniently dry skin,—and to reduce their wash bills to boot,—just by omitting water. Why, after all, drink so much of it? Why, indeed, drink any?

A friend of mine asked himself that question. The weather was muggy. He had to change undershirts twice a day; he didn't like the perspiration dropping off of his nose. So he quietly cut out all water. The experiment worked like a charm. Within a day he had practically stopped perspiring. He didn't have to mop his forehead any more. But his head began to feel queer. Soon, indeed, he felt queer all over, so queer, so very queer that he staggered to the Doctor who cured him, of course, with water.

The fact is that our bodies are sixty to seventy percent water. We get rid of water by the processes of nature; we breathe out water-vapor; we evaporate water from the whole surface of the body, every day and all day. If we didn't balance this loss by a good fluid intake, we should soon wither up. A one hundred and fifty pound man, for instance, would shrink into a mere forty-five pound skeleton cased in a little dry flesh and a parched skin. But before he had shrivelled nearly to that degree he would be dead. And again, long before that, he would be extremely constipated. His food would lie undigested in his stomach. In brief and in general he would be exceedingly ill. For fluid, and plenty of it, is absolutely necessary, not merely to maintain the propor-

tion of H_2O in our bodily chemistry, but to keep down the bodily temperature by evaporation; to serve as a medium for digestion; and especially to help carry off the waste products of digestion and to save the kidneys from damaging over-work.

It is clear, isn't it, that we simply must have water. We can live thirty days or so with never a scrap of food. But after five days without water we simply curl up and die. As my friend found out, even one day without water is enough to poison us good and plenty.

We need fluid. We must have water, or its equivalent in milk, or soup, green vegetables and fruit or what not. There's no doubt about the need. But when do we need water? How much do we need? And what sort of water?

It is wise to drink a glass of water before turning in at night, and two glasses before breakfast each morning. That helps keep the bowels healthy. A glass before lunch and another before dinner serve to wash out the stomach. Water at meals is hygienic too. Contrary to the current superstition, it does no harm, unless we use it to sluice down half chewed food. Taken between mouthfuls, it is more than harmless; it is a necessary medium for the digestive processes; and it enables the resulting nourishment to pass through the intestinal walls and into our blood.

How much water do we need? The average healthy person will profit by anywhere between two to four quarts of fluid per day. The exact amount depends on the temperature and humidity of the air, as well as on the amount of exercise we are taking. But there is no need of being pernickety about it. The precise quantity doesn't matter. The point is this: make sure you get

enough. Make sure you get, as a minimum, at least two quarts a day, and just as much more as you want. For healthy people, there is no danger of over-doing it.

Well, what about the kind of water that we drink? Is one sort better than another? Even pure water varies, in its mineral content, from place to place. In travelling, you may find that your bowels miss some stimulating substance in the water that you drink at home. The hard water in one town, too, is less agreeable than the soft water in another. One gets used to such variations. Their importance is slight. What does really matter, is infection.

Bacteria live in water; they are transmitted by water,—especially the bacteria of dysentary and of typhoid fever. At home, you can easily find out whether your town water supply is free from bacteria. When travelling and especially when camping out, it is far less easy. Remember that the most crystal-clear water may be “buggy” with infection. Beware of water from wells within fifty feet of any privy. Beware of water from streams and rivers in inhabited country. It is the most elementary precaution,—the merest beginning of common sense,—to boil all such water before drinking it, and even before using it to wash glasses or kitchen utensils.

Keep in mind the danger from typhoid infection lurking in unknown water supplies. This danger is so acute that folks planning a summer trip should be typhoid vaccinated. Typhoid vaccination is not an experiment. By many thousands of cases in all the armies of the civilized world it has been absolutely proved to reduce the typhoid risk close to zero. The risks run by unvaccinated travellers, on the other hand, are serious. For example, take three young ladies of our acquaintance who went togeth-

er on a pleasure trip last summer. They neglected typhoid vaccination. Two of them caught the disease; and one died. Remember that, if you please; and before you go away, have your Doctor vaccinate you for typhoid.

For the rest, our water-advice is simple. Drink plenty of it. Don't be afraid of fluids at meals. Drink two glasses of water before breakfast; if convenient drink a glass before lunch and another before dinner; drink a glass before going to bed. Be sure you drink no less than two quarts a day,—and beyond that, within reason. Never fear; you won't get water-logged.

WASTE AND THE BODILY MACHINE

The human body is an astonishingly efficient machine, for producing a maximum of energy while keeping itself at an even temperature and repairing wear and tear. No man-made machine begins to equal it. Yet even this human body of ours cannot get a 100% equivalent out of the fuel we feed into it. Even in health, it cannot consume every element in our food. There is bound to be a residue. And this residue must be regularly got rid of. Otherwise, it chokes the machine; or to put it more explicitly, it clogs and poisons us through the twenty odd feet of our intestines.

By the process of digestion, all possible energy, heat and material for storage and repair is extracted from our food. The residue includes certain poisonous substances, and further poisons may be produced by decomposition. If this material is not eliminated, the results are usually evident in muddy complexion, irritable nerves, an unstable temper, or lowered bodily resistance and increased susceptibility to colds and other infections. The subject is being chronically poisoned; and the old age disease, hardening of the arteries, is perhaps hastened by the accumulation of these poisons. The penalties are plain. One would imagine them sufficient. Yet a striking proportion of us, no one knows just how many, incur them continually. And why? Because we do not realize or believe that we are suffering from constipation. We imagine ourselves simply victims of fate.

What are the facts? Such symptoms may result directly from unbalanced diet or from irregular meals of abnormal bulk. Late Saturday night, for instance, I give

my stomach and intestines an unexpected avalanche of strange condiments. Next morning the stomach, though groggy, craves breakfast as usual. Breakfast is late. The stomach grows irritable. That fearful N. E. Sunday dinner, a two o'clock gorge, drives it to exasperation. And still I insist on insulting its injured feelings with a Sunday night supper of queer food at a very queer time. From this I take refuge in sleep. Sleep is a great restorative. But now even sleep cannot prevent that inevitable Monday morning grouch.

Constipation is clearly not alone in promoting bad temper. Indeed constipation, in some rare cases, produces no evident results. But as a rule, it does cause irritable nerves, a muddy complexion, or lowered resistance to disease.

How does this come about? Look at the people who suffer in these ways. How do they live? They are often sedentary folk, taking little exercise. They are apt to have mistaken habits of eating, made worse by insufficient fluid intake. Poisoned and often worried, they swallow drugs which transiently alleviate their clogged condition, only at the cost of making the natural process of waste-disposal all the more irregular. For such drugs are useful only in emergencies. In the very act of swallowing, they rob many a patient of that matter-of-course confidence which counts for more in our physical habits than most of us begin to think.

What then is the cure? It is simply these causes reversed. The cure is sensible and sufficient eating, drinking and exercise; and cutting out all drugs except in real emergencies. Finally it is confident and unremitting regularity of practice; for our intestines form habits just as we ourselves form habits.

Don't wait to be sick, or even to feel mean or below par. Through habits of general good hygiene, prevent constipation before it begins. Eat freely those foods which supply "roughage;"—coarse cereals and coarse breads,—which stimulate the intestines to their own rhythmical exercise. Don't limit yourself to spuds. Eat large servings of coarse green vegetables. Eat fruit. Drink water plentifully, including a glass at night, and two before breakfast. Take exercise. Avoid drugs. Go to the toilet at the same time every day. Instead of worrying and getting discouraged by transient ill-success, look confidently ahead. Discouragement and worrying about such nuisances as constipation actually interfere with our normally sub-conscious physical habits, by dragging them into the light. Good physical habits are the more easily established with little or no direct effort on the way. Be regular. Enjoy your barley or cracked wheat, your whole wheat bread or bran muffins, your spinach, dandelions or onions; your apples, oranges, rhubarb or berries; your plain fresh water; your brisk walking, tennis or swimming. The results will take care of themselves.

There are cases, of course, where constipation resulting from unusual causes, requires special diet and exercise or even special braces for its cure. We know obstinate cases of constipation, too, unrelieved by ordinary physical measures, which have been cured, nevertheless, by the patient practice of effortless and quiet, mental suggestion. By and large, however, good physical hygiene does the trick. If, then, you will remember, and establish as habits, the simple rules of good hygiene in diet and exercise, your processes of elimination will do the rest. You will be relieved of accumulated residues from digestion, and free as a rule to live your life in unpoisoned good temper, good health and good cheer.

AIR

Why is a Man like a gasoline engine? Because he needs air and lots of it, and because he needs it for combustion and cooling.

Three thousand cubic feet of air per hour is what you and I have to get into our lungs, and out again; seventy-two thousand cubic feet per day. As a gas engine draws air into its carbureter to supply oxygen to burn with the gas, so we breathe air into our lungs to supply them with oxygen for food combustion. Seven pounds per day go into our lungs. Five pounds go out again. But two pounds of oxygen go, through the lungs, into our blood to transform our food into energy and heat for the whole body.

On an average we change only one tenth of the air in our lungs. Deep breathing changes the stagnant nine-tenths of the air; it oxygenates the blood, and sends it coursing on to do its work. Exercise forces deep breathing. Take exercise. Your body and mind will profit by it.

So much for combustion. Now what about cooling?

Our cooling mechanism is more cunningly adjusted than any thermostat. It keeps the body automatically at its normal temperature, even if the thermometer outside rises to a hundred. It works partly by radiation, but very largely by evaporation. Whether we actually perspire or not, our skin cools us by getting rid of two and one half pounds of water-vapor per day. Now if the surrounding air grows damp, the rate of evaporation is cut down, and cooling depends more on radiation. And if the air is not only muggy, but very hot, our cooling mechanism is badly obstructed—as all of us know, who have experienced days when the humidity ran up to 90. For a dry day with the thermometer at 92, isn't a patch on a muggy day with the thermometer at 85.

We thrive on breezes, natural and artificial. Witness the electric fan. For breezes blow away the coating of warmed and moistened air around our bodies, and bring fresh air to carry off the heat and moisture from our skins. This relieves the cooling mechanism, as the fan on an auto cools the radiator or rather as the fan *would* cool it if radiators were built to sweat. Our skin needs moving air. So avoid smothering it with too much clothing, or an excessive supply of blankets at night.

If we suffer at times from summer heat and dampness, winter is far more likely to get us into trouble. In winter, for fear of shivering, we heat our houses, offices, and workrooms to fierce extremes. But in heating the air, we make it proportionately much drier; for hot air can take up immensely more moisture. Now the desert-dry air of the average room heated to seventy, exaggerates evaporation from our skins, and so keeps us from feeling as comfortable as we should feel in a moist atmosphere with the thermometer as low as 65 or even 60. What is more, a moist atmosphere would keep the passages of our noses and throats from drying up, as they now so often do to our cost; for their membranes, when dry and especially when irritated by dust, probably offer less resistance to disease. The result is that they get infected, and you and I catch colds.

Moving air, not too damp, is what our cooling system prefers. Air not too dry and not turbid with city dust and germs, that is what the filters of our throat and nose can strain with the least risk. Clean air and lots of it, that is the simple demand of our lungs.

Try, then, to get moving pure, fresh air, and plenty of it, at home and at work, by day and at night. You can't overdo it.

HOW TO GET IT

We need fresh air. It is hard to overstate our need of it. Without it, we should promptly die of suffocation; as a man dies who is paralyzed by electric shock, so that his lungs cannot work. To live we must breathe; we must work our lungs, like bellows drawing in air and pressing it out again: — three thousand cubic feet of it every hour.

We need all this air to ventilate our lungs. To flush out the carbon dioxide and the impure water vapor. We need this air, too, for the oxygen in it. Two pounds of oxygen go through our lungs each day, into our blood, and are used for food combustion. Without this oxygen, our bodies would be cold; and we should have no energy even for thought.

It is clear that we need air, great quantities of air. But what kind do we need? Will any air do; clear or dusty air, clean or germ-laden air, dry air or damp, lively or dead air? No: just any old air is not the air for us. What we need is something special; air clean and free from dust, not too hot and dry indoors in winter, and decidedly not motionless. The air we need is not dead air, but alive.

We need living air, not only for breathing, but for ventilating our skins. It isn't just our lungs inside us that must be flushed. Our whole outside skin, so to speak, breathes out vapor. Even if we don't perspire, it must somehow evaporate two and a half pounds of water-vapor a day. You have all probably heard of the boy who was gilded for a Royal pageant, from head to foot, with gold leaf. What happened? The gold leaf sealed up the pores of his skin. No vapor could escape. And the boy, quite naturally, died. Well, you and I aren't likely to gild our

skins; we prefer to gild our pockets. But too many of us are just as foolish. For we sleep in our rooms with windows on only one side, so that even if they are open the air moves but little. Or we open the windows only at the bottom, instead of at the bottom and the top, so as to promote circulation of air. And we cover ourselves with an excess of blankets. We breathe and rebreathe the same dead air; our skins evaporate only a part of their load of vapor; and we wake up in the morning, dull and unrefreshed.

Much of our poor work,—in factories, schools and offices,—comes from similar follies. With windows closed to keep out the cold, the atmosphere stagnates, our skins act sluggishly; we breathe and rebreathe the same, or part of the same, dead air. And willy nilly, we work less well.

There are remedies:—Systems of ventilation varyingly complicated, expensive and efficient. Some of these remedies seem worse than the disease. For example, the systems of indirect ventilation in our schools, where heated air is pumped in from above, and the used air forced out near the floor. Certain experts hold that this system is vicious. The air breathed out by the school children, at a temperature of 98, rises; it gathers near the ceiling; cools; and is carried down again. The old air is rebreathed again and again; and fresh air is substituted only in small proportions. In an actual test of this indirect system, with the apparatus tuned up to the top notch of efficiency it took thirty minutes to clear a smoke-filled school room, and to fill it with fresh air.

The simplest system, after all, is apparently the best; the direct system which depends on the heat of breathed air to carry it up and off. It is curious that many farm-

ers should have hit on a system, for their cows, which is better than what the wise-acres could devise for our schools. But it was really the farmer, with his monitor-roof cow-barn, who did the trick. Physicians and Hospital administrators have perfected the plan; and at hospitals in Wellesley and in Canton, Massachusetts, the Boston Children's Hospital and elsewhere, you can now see monitor-ceilinged rooms where the hot, breathed air rises to the sloping ceiling, slides up to the monitor top, and escapes by its windows. There is no down draft, no draft, indeed, of any kind; simply a steady upward current of absolutely fresh air. You have heard of the so-called droplet method of infection. When we have colds and other respiratory diseases, we cough out, and sneeze out thousands of minute droplets of moisture each one carrying the germs of our disease. In schools and offices where the air is stagnant or simply churned, we breathe in these droplets; and if we aren't resistant, we catch each others diseases. Out of doors, where the air is alive and moving, the chance of infection is much less. So too in the hospitals just spoken of, where all breathed air rises and escapes before it can be breathed in again. It has been found by long observation, for instance at the Canton School for Crippled children, that what is true in theory is also true in fact; the children in these monitor ventilated wards simply don't catch colds, they don't get bronchitis, they don't have pneumonia.

In School houses not built for the direct system of ventilation, a good method of heating and ventilation is to turn on the heat at night, and get the walls thoroughly warm, then to turn off the heat in the morning, and to open the windows. In a word—if you can conquer the janitor,—heat the walls: don't bake the child,

But what about you and me? While the direct system of ventilation would be ideal for us, we can't rebuild the houses and shops and offices in which we live and work. But we can do this. In our places of work we can try to get clean cool air of proper humidity; we can try, at least, to get the bad air flushed out at decent intervals, and the live, outside air let in. We can, perhaps, get window boards put into the windows. At home, in summer, we can live all the time in moving fresh air. In winter we can get a good deal of moving fresh air especially at night. And all the time, in the name of health and comfort, we can root for ventilation, real ventilation, ventilation that keeps the bad air moving out and fresh air moving in.

YOUR EYES

Every bright young owner of a camera knows something about its lens. If he didn't at least know how to focus it, he couldn't take decent photographs. Your eyes are live cameras. The pictures which they show you are vastly more important than photographs. Without these pictures, our living, our health, even our lives would be in danger. Yet most of us know so little about our eyes that we may be totally blind in one, or have only half normal vision in both of them, and stay so for years, without once being aware of it.

That is one reason why the State requires eye-tests yearly in the public schools. But there is another reason too. These wonderful eyes of ours often have slight mechanical defects. Correcting them may not only save children from being retarded in school; it may prevent serious damage.

See to it, then, that the children you know have their eyes tested when starting school. In the public schools, this is seldom neglected. In most private schools, however, it is left to the children's parents. Urge them to act. A routine eye test for all children of school age is essential. If either parent is near-sighted, it is especially important that their children get early and expert attention. If a child's eyes turn in or out, delay may be serious. The child should be taken to an expert before he is three years old.

School eye-tests are rough. They show only that certain children should be more carefully examined by experts. The tests do not always even succeed in that. So wise teachers and school nurses insist on children whose eyes test normal, but who are backward or who scowl or

squint or have headaches,—they insist on those children being sent to experts. Parents and friends should do likewise. And they should take every care to find experts, real experts. Only the trained specialist can be trusted to find the underlying causes. Only the trained expert can be trusted to diagnose eye disease, to prescribe glasses, to change them when necessary, and to refuse to prescribe them when they are not necessary. Examining the eyes, especially children's eyes, is a delicate matter. Frequent change of glasses, except in case of increasing near-sightedness, is unnecessary and undesirable. And unnecessary glasses are a costly nuisance.

Eye-tests are as necessary for grown-ups as for children. A surprising number of people have driven themselves through school and even through college in spite of serious eye-defects; and are hammering away unconsciously at jobs which strain their defective eyes. Are you or I doing that? Look out for signals of possible danger,—scowling, squinting, headaches and loss of clear vision in one eye or both. Look out especially for slow deterioration of sight, in people past middle age. Coming insidiously and without pain, it may mean a most serious disease of the eyes, which only expert examination can reveal, and which only prompt and expert care can possibly cure. Don't tolerate delay. Far too many people whose eyesight is poor or next to nothing today, would see as well as you or I, if they had only been prompt in securing the best expert professional advice and care.

Avoid quacks and nostrums. Your eyes are precious,—too precious to risk in half-trained hands. Second rate advice is the most expensive in the end. And patent or

proprietary eye drugs and washes sell at from five to ten times the cost of their ingredients.

Remember that the eye is not simply a camera. It is a living and delicate part of the body. As such, it requires sensible use. All of us, and children especially, should sit in a healthy position when reading, with light coming preferably from over the left shoulder, and with the book held at least fourteen inches from the eyes. Abuse of the eyes,—fine near work, work in bad light or in a glare,—tires not only the eyes but the whole man. Bodily fatigue and disease on the other hand, reacts on eyesight. Lowered vitality is really at the bottom of what is often taken for eye-strain. Tuberculosis and other bodily diseases attack not merely the lungs, the bones and special glands, but also the eyes. But good hygiene, reasonable habits of eating, sleeping and fresh air, work and play,—these help to maintain the whole body, including those precious eyes of ours, in health and vigor.

To sum up. If in doubt about your eyes, be satisfied with only the best advice. If glasses are really necessary, wear them. If not, go without. Your eyes are willing servants. Don't abuse them. Within reason and in good conditions, use them; use them fearlessly and unconsciously. They won't rebel.

THE DECAY OF AMERICAN TEETH

A shocking proportion of Americans have decayed teeth; Italian and Russian immigrants have much healthier teeth. Why are ours so bad? For one thing, because we abuse them. Instead of using our teeth as a chewing machine, as nature intended, we let them loaf. For cereal we choose a kind which requires no chewing, or one which we can soak with milk so that it will slide down slickly. If we eat dry toast, do we chew it? We wash it down with our coffee. What chance have the teeth with a breakfast like that? And so, on through the day, and day after day, our teeth haven't a fair chance for work or exercise.

The draft showed that one fifth of our young men in Massachusetts had defective teeth. Four per cent were actually rejected for military service, just because of bad teeth. And the children are following the same way. Even in Boston 40% of the children in the graded schools need dental care; and in the rural communities over 90%.

People can "chew the rag" with bad teeth, but it takes good teeth to chew good food as it deserves to be chewed. One can be what one *chews* to be. That's as old as its cheap, almost; but there's truth in it. Now chewing isn't even comfortable if your teeth are full of cavities. Have them filled, no matter how small the cavities may seem. A filling in time saves grinding, and false teeth, at last. A tooth in the jaw is worth ten in a plate. A tooth lost is a tooth lost. Put what you will in its place—the tooth is gone.

Nature protects the teeth with the hardest substance in the body. Teeth ought to last a life-time. But even nature isn't fool proof. Nothing is. What's to be done about it? Take care of them.

How many of us really give the inside of the face as much care as the outside? Men shave daily; both men and women wash their faces. Does the inside of the face really need less care? Food left between the teeth causes decay, and offensive breath. After using the teeth for food, then, brush them. Remember: the early brush catches the first germ. And get after 'em at night, whatever you do. The greatest amount of decay occurs at night, when the mouth is quiet. The best tooth paste is elbow grease, vigorously applied via a medium tooth-brush. Scrubbing the surface of the teeth—the part that shows—isn't enough. The big idea is to get in between the teeth and in, up, out, down, with a good brush. This means you! It means the kids too. Don't let their permanent teeth come out in a mouth full of decay. Care should begin when the first milk teeth appear; and care should continue while there is strength in the arm to brush them.

Proper brushing means less dentistry. But everyone should visit the dentist at least twice a year. You will have less work to be done; there will be less pain to it; it will cost you less; it will take less of your time. Pretty good interest for the time invested, isn't it? And speaking of dentists, choose a good one. Cheap dentistry is fearfully extravagant in the end. Above all, avoid the advertising, so-called "painless" dentist.

Food has much to do with tooth decay and with the tooth-building. Go easy on sweets. We average about one hundred pounds of sugar per person per year. Candy, cakes, jam, pastries, all the sweetmeats contribute to this. Other foods, tooth-building foods, should be much more emphasized, especially in the diet of growing children. All the natural foods are conducive to healthy bodies

and mouths. Fresh vegetables, fresh fruits, eggs, whole grain cereals, and whole wheat bread are admirable for the teeth. Milk, which contains more lime than any other food, should be regarded as the necessity that it is, for children and for expectant mothers.

Napoleon once said, "An army marches on its stomach." True, the food we eat, carries us a long way. But if we chew that food in a mouth full of decayed teeth, abscessed teeth, we are going to meet our Waterloo.

You may think you're fit as a fiddle, but if you neglect your teeth, abscesses can form at the roots without giving apparent trouble. These pus sacs spread and are poisonous. That poison, carried in the blood stream, may attack the heart, eyes, kidneys, joints.

Good teeth help keep us healthy. Bad teeth lead to disease; just how much disease we don't know, but probably at times to very serious disease. So if your teeth are good, keep them good. If they're bad, keep them from getting worse. And for mere decency's sake, let's give the rising generation better teeth than ours.

EARS TO HEAR WITH

We are healthily scared about going blind, so scared that we have State Agents to conserve eyesight, and laws to lessen the risk of eye infections and of accidents to the eye. But deafness we ignore. We forget how fearfully it cuts men off; how it tends to dull their minds; and if they are not of heroic mould, how it warps their very souls with testiness and suspicion. Yet there are more deaf than blind people among us; deafness is increasing; and if you and I are not prudent, it may well menace US.

A study of ear trouble among school children, some years ago, revealed such a threatening state of things that school tests of hearing were required by law. These tests help to catch cases of poor hearing, in both ears or only one, before they have grown noticeable. And that, after all, is the right time to catch them, all along the line. For deafness in adults, as in children, is not itself a disease; it is a result of disease or accident, and by far the most often, a result of disease in the nose and throat.

It is a safe bet that proper care of everybody's nose and everybody's throat would soon stop most of the present crop of preventable deafness. Preventing deafness and ear trouble depends partly on prevention and skilled treatment of colds and the "children's diseases", especially measles and scarlet fever, which begin in the nose and throat. You can help in these ways. You can help save the kids' hearing,—and save them from suffering too—if you will remember particularly, and act on, two points. The first point is this:—that a child who is subject to colds or has "growing pains" or a heart or kidney infection, or is in generally poor health, heaven only knows why, should be taken to a first class throat specialist. You can trust a

throat specialist on the staff of an A. No. 1 hospital; don't fool with anyone possibly less expert. If your first class man advises removing the kid's tonsils and adenoids, see that it is done. Abnormal adenoids cause mouth breathing; and by closing those back entries called the Eustachian tubes, they prevent the proper and necessary ventilation of the ear. Diseased tonsils cause kidney and heart infections; they also promote the habit of chronic colds, spread infections in the throat, and through the Eustachian tubes, let the germs of disease move into our ears.

The second point to remember and to act on, is this:—that earaches must not be made light of. Earaches are not necessarily dangerous. But if the kid, or the grown-up, with an earache has fever, the cause must be taken seriously. Make everyone with an earache suck a clinical thermometer for three minutes. If the temperature is above normal, call in a good Doctor, preferably an ear Specialist, at once. For an earache plus temperature may mean mastoiditis, or infection of the mastoid, which is a hollow at the back of the ear and close to the brain; and mastoiditis, failing very expert surgical care, may easily mean death.

So much for the perils of childhood. But don't think that when childhood is passed, all risk of deafness is behind you. On the contrary, the majority of deaf people have lost their hearing late in life, from slow and insidious diseases of the ears, originating in the nose and throat. If we wish to keep our good hearing, then, it is up to us to keep infection out of those back entrances to our ears, the Eustachian tubes.

If we walked on all fours like animals, infections in our noses would have to climb, to get into our ears.

Every time we have a cold, it is easy for bacteria to slide into our Eustachian tubes. The bacteria start repeated slight infections in our ears; the winter alternations between frigid winds and the still, stuffy air of our overheated offices and rooms, help make these infections chronic. The ferocious contrast of our New England climate, our dusty streets, our dusty trades, all contribute generously to our too prevalent chronic catarrh.

Now if we were African savages, our first failure to hear even a soft and distant foot-fall, would mean the fight of our lives with some leopard or panther. Civilization, however, makes only casual demands on our hearing; in our noisy streets, to hear a honk or a yell is sufficient. So it comes about that men lose their acuteness of hearing, little by little and often quite unconsciously. Only by tests, can they know that they are growing deaf.

To be safe from the menace of deafness, we must wake up, and look out. We must look out even about apparently trivial matters. We must not give way, for instance, to that natural impulse to dig out our ears with a match or a tooth-pick. If wax must be removed, it should be syringed out; syringed not by an amateur, but by a physician. We must not snuff up water through our noses, unless professionally advised to do so; for the water may carry disease germs from the nose back into our Eustachian tubes. We should also look out for a couple of modern fads. Fresh, moving air is good; but extremes of cold about the head when sleeping should be eschewed. It is inadvisable, too, to sleep as some fadists do, without a pillow; for with the head depressed, there is danger of chronic congestion and disease of the ear. All these details are important. But they are details. The

main road to prolonged good hearing is the general road of good hygiene, and of prompt, very expert, medical and surgical care. Stick to these, and your chance of being drafted into the army of the deaf will dwindle constantly. Be good, hygienically speaking, and you may not be beautiful; but be good and stay good, and with half way decent luck, you won't be putting a hand to your ear and saying, "What?" "What?", even at three score years and ten.

Ears were given to few of us as ornaments, but to all of us for use. Ears are built to hear with. Keep them capable of hearing. He that hath ears to hear, let him hear, and keep on hearing.

TUBERCULOSIS

Some saints and some geniuses have achieved success in spite of bad health. They have even achieved it through the struggle against bad health. But the average man can hardly succeed without at least fair health. For most of us our job is a necessity; and to keep that job, we must keep our health. We may perhaps take chances with our pleasures: if we miss them once, we can make up for it next time. But we simply can't afford to take chances with our health.

In the fight to keep well, we must learn to know our enemies. One of the worst of these is tuberculosis. Consumption, or tuberculosis of the lungs, kills about two hundred and fifty thousand Americans each year, almost four times as many as were killed in the World War. Tuberculosis and cancer both do terrific execution. But while the cancer killings have been going up, the consumption killings are decreasing. In Massachusetts last year, while the Cancer rate ran up to one hundred and twenty per hundred thousand population, the consumption rate fell to eighty-five. But though our enemy is retreating, he is retreating only step by step, and doing murderous execution on the way. Even now, if we don't drive him back faster, this enemy will kill every tenth man of us.

While the acute diseases of childhood cut men down in the bud, and while cancer and heart disease, for the most part, cut us down beyond mid life, tuberculosis does most of its killing between twenty-five and thirty-five, at the height of our years of promise. And these killings go on comparatively in silence. We make an outcry about epidemics,—infantile paralysis, for instance, and influenza,—an outcry that resounds around the world. And

we talk, it is true, about consumption. But do we realize that, regularly every year, consumption makes from ten to twenty times the havoc that the flu makes now and then? Think of it in the basest terms, the terms of filthy lucre. The yearly cost of fighting tuberculosis runs above three million dollars in Massachusetts alone, while the United States pays a tuberculosis bill of about two billions a year.

Now this waste and distruction cannot be rapidly cut down; the enemy cannot be got on the run, until every one of us is a minute man. Each one of us must know his duty: each one must be ready to act at the first signal of danger. And the danger signals of tuberculosis which every one should know, are: loss of weight and strength, fever, coughing, and spitting blood.

Most people know enough to take warning by a hemorrhage from the lungs. Coughing up as much as a teaspoonful of clear blood will pretty surely make them do the sensible thing: go to bed, and send at once for the Doctor. Many people will be alarmed by coughing or spitting up even small streaks or specks of blood. This alarm may be founded. But even these streaks and specks are signals of possible danger, to be acted on promptly. Only a skilful physician can decide what they really mean.

Coughs are another signal. Many of us, in our New England Climate, have colds and coughs which have nothing to do with consumption. But a cough or cold lasting more than six weeks is suspicious. Don't neglect it. Don't take chances. Consult an A-1 physician about it; or if you haven't the cash, go promptly to a Dispensary or Hospital Out-patient Department where, for next to nothing, you can get the best medical service that money can buy.

Fever again is a danger signal. Act on it. If you feel flushed or feverish or shivery, suck a clinical thermometer.

If your temperature is above normal, something is probably wrong. If it is above normal day after day in the afternoon or evening, tuberculosis may be the cause. In any case, get prompt expert medical attention at once.

Finally loss of weight and strength is a signal calling for action. If we grow thin and lose strength, without having been ill or worried or overworked, there must be a reason for it. Even if we don't cough, even if we have no fever, the cause of our weakness and loss of weight may be tuberculosis. The sooner the question is settled, the better our chance of cure. And the first thing to do is to consult the best medical expert within reach.

Take a case in point. A young nurse of our acquaintance, active, successful, happy. Naturally thin, she began to get thinner. She didn't cough, she had absolutely no fever. But, as a nurse, well educated, and experienced, she knew that something must be wrong. She went straight to one of the best three or four tuberculosis experts in Boston. He made a diagnosis of tuberculosis of the lungs in the first stage. He advised a sanatorium. Though she had an excellent country home, she went to that Sanatorium at once; and now, six months later, weighing fifteen pounds more, she has gone back home for a fortifying rest, before taking a part-time job as a first step to normal life in her profession.

That girl has horse sense. If you are in her shoes show that you have as much of it. If one of your friends is in her shoes, see that he follows her example. If his physician advises sanatorium treatment, don't let him argue; make him go. It may be true, as he says, that he can get better food, better quarters and just as good air at home. That isn't the point. A tuberculosis patient is sent to a sanatorium, as a boy is sent to school, to learn something,—in

this case how to fight his disease. Let him go and learn his lesson, and the chances are excellent that our enemy will be deprived of another victim.

One point more. Take at least as good care of your body as you would take of an automobile. Use it sensibly. At the first sign of trouble consult your Doctor. Have your body overhauled, as a good engine should be overhauled, once a year. Take advantage every year of such examinations as are offered by the Life Extension Institute; or by the "Consultation Clinic" at the Massachusetts General Hospital, where any one may be sent by his physician for examination and report; or by the Health Clinic at the Boston Dispensary, where any wage earner may go, and be overhauled at cost price, five dollars. If you and all your friends will make a habit of such yearly expert bodily overhauling, you'll help put our arch enemy, tuberculosis, on the run.

STEER CLEAR OF TUBERCULOSIS

Three-fourths of us, at one time or another, are infected with tuberculosis. This does not mean that three-fourths of us catch the disease. It means simply that the bacilli established themselves in our bodies. Most often we are infected during childhood. As a rule, this infection does not develop into an active case of the disease. Sometimes, however, the infection is so severe that a child comes down with the active disease in a very short time.

Fortunately, most tuberculosis infections do not develop into active tuberculosis. In healthy persons, a tuberculosis infection sometimes seems to produce an immunity to the disease, perhaps somewhat like the protection which vaccination gives us against small-pox. But as you and I don't know which of us are more or less immune to tuberculosis, we must be careful not to wander into a fool's paradise. Prolonged exposure to tuberculosis, or shorter exposure to a very severe type of the disease, may result in a new infection. And if we live in bad surroundings, if we violate the rules of good hygiene, and if we dissipate our energies and get generally run down, we may easily fall victims to an infection that has lain latent in us for years.

To prevent tuberculosis we should begin early. We should watch out especially for the children. They are most apt to have the disease in the glands of the neck, in their bones and joints, in their intestines, in the spine; they also have it in the fatal form of tubercular meningitis. How does all this disease begin? The children, very often, have eaten the infection in their butter; they have drunk it in their milk. From five to ten percent of all raw market milk contains the living bacilli of tuberculo-

sis. Butter is even more often infected. Now milk may be fresh; butter may be delicious; but if this butter and milk comes from tubercular cows, they may be unsafe. Instead of giving our children strength and health, they may bring them long drawn out suffering and even death.

All this can be stopped. Expert inspection and tuberculin testing of all dairy cows would show up every cow with tuberculosis. In untested herds, at least one cow in ten is likely to have tuberculosis. Tubercular cows can generally be used for food; but their milk and the butter made from this milk may be dangerous. Such cows should be killed. This means temporary hardship to the farmer. He should be compensated for his loss by the state. Ultimately it will pay the farmer to eradicate tuberculosis from his herd. The task of eradicating all tubercular cattle is great. It may take years to complete this program. In the meantime we must pasteurize all milk that does not come from tested cows. It is time for the public to call a halt. Our children must no longer be given living tuberculosis bacilli to drink in their milk, and to eat in the butter spread on their bread and toast. The supply of infected milk and infected butter must be stopped. In the meantime, we must demand proper pasteurization of milk and of cream for butter, to kill the tuberculosis germs.

Even more menacing than cow tuberculosis is tuberculosis transmitted by man. When a consumptive spits on the sidewalk, tubercle bacilli may be tracked into the house from the sputum. It dries, and may easily be inhaled as dust. Promiscuous spitting, therefore, should be stopped, everywhere.

Teachable consumptives must be induced to cover their mouths when coughing, and to spit only into re-

ceptacles that are afterwards burnt. Incurrible consumptives must be sent to institutions where their carelessness will no longer menace their neighbors, their families and their friends.

Since careless spitting still persists, and since tuberculosis bacilli are practically sure to get into our houses, our next move must be to call in the help of the greatest enemy of tuberculosis. We all know the marvellous effects of sunlight on bone-tuberculosis and on open tubercular sores. The sun, in these cases, simply kills the tuberculosis bacilli. Nature does the rest. Take the hint. Let your friend SUNSHINE, as much as possible, into your houses. Better than any commercial disinfectant, old Sol will kill the bacteria lurking in your dust.

But after all, our main defense against tuberculosis is good, resistant health—of which we can gain more and more if we will only live sensibly. But while sensible living sounds as easy as rolling off a log, it really means effort; a fight, almost a revolution. We civilized folks, most of us, simply don't live sensibly. Is it sensible to sleep and work, day and night, cooped up in houses, factories and offices that are sealed tight against the outer air? Is it sensible to drug ourselves with poisons like alcohol? To over-work, under exercise, worry, lose our sleep? Surely not. Yet we do, most of us, give way to one, if not all, of these follies, — follies which we must fight and conquer, if we are to down tuberculosis.

Keep your bodies strong, healthy and resistant by living a regular life. Each day eat three nutritious meals of mixed diet properly cooked. Avoid late hours and dissipation. Always get plenty of sleep. Avoid unduly long hours of work. Do not work on Sunday, but take it as a day of rest. See that you breathe through your nose.

The nose is made to breathe through. If it is stopped up see your physician about it. Get out of doors every day, and take some form of exercise,—walking is good exercise, and costs nothing. If you have a cold or a cough which has lasted over four weeks, see your physician and have your lungs examined. Do not wear too light or too heavy clothing; wear just enough to keep you comfortably warm. Take a few simple breathing exercises night and morning, before an open window or out of doors.

Put into practice the rules for hygienic living which we have tried to make clear in these talks. Be reasonable about work, food, sleep, recreation; take regular exercise; get ample fresh air; live the sort of life in which you can really believe. Do all this, you who are well; keep on doing it; make a habit of doing it; and you may rest assured that you, personally, will have the Tuberculosis bacilli licked.

SUNLIGHT

The sun is our great ally. As you know, it kills bacteria; for bacteria love darkness and not light. The sun is our ally, not only in killing unfriendly germs of disease, but also in this: it cures certain diseases, and it astonishingly promotes our general health.

Rickets, a disease attacking, for the most part, undernourished children, is cured in more ways than one. As that eminent Child Specialist, Dr. Park, has pointed out, investigators of rickets have looked too much for a single cause. For Rickets is probably caused in different ways; and correspondingly it is cured, not only by the vitamins contained in fats and animal oils, but also by the stimulating rays of the sun.

This same sun, friend and ally of man, has astonishing effects on tuberculosis. It helps prevent the disease by killing Tuberculosis bacilli. It also cures. In many and striking cases, exposure to sunlight, by somehow stimulating our bodily vitality, has cured tuberculosis of the glands and tuberculosis of the bones. It has also cured tubercular peritonitis.

Even the photographs of tubercular children treated by sunbaths are astonishing. At his establishment among Alpine snows, Dr. Rollier, the pioneer in helio-therapy, shows us a boy with tooth-pick arms, ribs like a mere skin covered skeleton's; a greatly enlarged tubercular gland in the neck, an open tubercular sore in the calf of one of the spindly legs:—altogether a pathetic and lamentable specimen. The case looks hopeless. What happens?

After gradually increased exposure to sunlight out of doors, a little more of the body and a little longer each

day, the boy's skin becomes more and more tanned. Naked, except for a pair of drawers, the boy lies, at last, in the outdoor sunlight as much as five or six hours a day. The results are almost miraculous. He gains weight: his muscles develop, his tanned skin grows healthy, that tubercular gland in the neck disappears. That open tubercular sore in the leg is gone, leaving a clean scar. The boy's whole body is supple, smooth, well filled out. Thanks to our friend the sun, he has become a happy and literally beautiful specimen of life and health.

Cures like this are helped by fresh air and proper diet. But as proper diet and fresh air alone cannot duplicate them, there is no question of the cause. Exposure to sunlight, sun bathing, is the effective, the authentic agent of cure. Just how the sun works such wonders we do not know. Sunlight passing through glass cannot achieve them. Glass cuts out the sun's most curative rays. But of the facts, there can be no doubt: properly regulated bathing of the bare body, in these actinic rays of the sun, somehow energizes our vital functions so that health, in certain maladies, entirely displaces disease.

Now if sunlight so wonderfully cures, why may not sunlight prevent disease? The answer is plain. It has been shown by experience that sun bathing tends to prevent rickets and tuberculosis. And it has been proved in practice that sun bathing immensely promotes our positive health.

In France, where the climate makes the experiment easier than in our northern United States, sunlight classes have been started and carried on with success. The children,—dressed in drawers, bath-wrap, and straw hat,—set out from school with their teacher. Marching to the rhythm of a song, they follow the teacher to a sunny

field. Their bathrobes thrown off, they sit naked, except for drawers and straw hat, bathing in sunlight while they have their lesson. Exercise follows, and play. Then back they march to their school for lunch. And in the afternoon, lessons, exercise and play are repeated in the sunlit fields.

These children, of course, are not abruptly broiled in the sun. Their skins must be trained, by gradually exposing more and more of the body, each day a little longer, so that instead of being sunburned they are tanned. In good weather, two weeks of such training make it comfortable, dressed only in drawers, to stay in the sunlight for half an hour, morning and afternoon.

After that, progress is faster. Half an hour can be added each day, morning and afternoon, till the child bathes in sunlight as long as five or six hours a day.

What are the results? First, the skin is gradually tanned. Children of blond complexion, become amber colored; dark skinned children are bronzed. This is the first and superficial effect. But the skin also becomes supple; it acquired a peculiar velvety surface, and a special aspect of health. The muscles are so transformed that they seem literally to have been nourished by the sun's rays. The muscles gain vigor of tone. The child, who has stooped before, now stands erect, with stomach no longer protruding, but in place. The children breathe more deeply. Their appetite improves. Their intestines move easily, freely and regularly. The children gain in weight, and height. Those who were nervous and irritable grow happy and energetic. They sleep well; they eat well. And the whole class is extraordinarily harmonious and gay.

This account may sound imaginative, almost fantastic. It is nothing of the sort. It is quoted almost word for word from that noted French child specialist, Dr. Armand-Delille. And it describes, not a theory, but facts. It describes the actual transformation, the physical regeneration, of refugee children, by careful sun bathing under medical supervision.

Now since these things are so, what can we learn from them? In our city life we are so incased, body and soul, in our clothes, that sun baths seem inconceivable. But in vacation time, we and our children, our brothers and sisters and nephews and neices, break away, into the mountains, along beaches, onto boats. Here are chances to grow better acquainted with the sun. Let us get rid of superfluous and unnecessary clothes. A little at a time, let us get used to sun-exposure; let us tan ourselves and the kiddies, as nearly as may be all over; and even if they and we don't need to be physically rebuilt, we shall come back freed and refreshed in spirit by this direct and physical contact with what St. Francis called our Brother the Sun. And especially is this true of children. For has it not been said, and said very truly, that, "Of all flowers in the world, the human flower craves sunlight the most."

PLAYING WITH DEATH

We hate to talk to you about tragic things. But when the tragedy is unnecessary, when it absolutely can be stopped, haven't we got to get after you? Here are 90,000 Americans being killed,—more than all the men we lost in the World War,—90,000 people being killed each year by cancer. And why? Very largely because people are ignorant or scared or foolish. And the situation is getting blacker all the time. In the last forty years in Massachusetts, the Cancer death rate has gone up, up, up; by ten year intervals from 1881 to 1891, it has jumped from 37 per 100,000 to 52, to 61, to 92, and last year to 120.

Now you and I are young folks, most of us; and cancer isn't likely to get after us just yet. But before so very long, when we are forty, if we don't look out, we shall be cut down with the rest. If we don't get busy, every tenth one of us will be stupidly and uselessly killed, by this single, often curable and sometimes even preventable disease.

Why? Because most of the public and too many of the medical profession are either grossly misinformed, or twenty years behind the times. Too many of us still live in the fear of cancer as a contagious disease or an inherited fate which we had better forget if we can, because, as we imagine, a certain number of us are its appointed prey, and if it nabs us, our chance of life is about one in 100.

All this is nonsense, and very dangerous nonsense. There is no evidence that we can either catch or inherit cancer. And if we are unfortunate enough to come down with it, our chance of cure, now-a-days, are good.

With our present knowledge, that death toll of 90,000 Americans a year can and should be enormously cut down. It should, and it can, if the public will wake up. The public must wake up and learn enough about cancer to lose its irrational fear, to look out for danger signs, to avoid fake cures, and to get prompt and really expert treatment.

While there is still much to be learnt about cancer, we know already that it can sometimes be prevented. Cancer is a sort of insanity of our body cells that makes them grow in an abnormal and dangerous way. It occasionally starts up in warty growths, moles or birthmarks, and in otherwise harmless lumps and small tumors. These possible sources of cancer can easily be removed by any competent surgeon. The point is, that while most of such growths are not dangerous, those which are dangerous should be removed before the disease begins. Remember, then, that moles, birthmarks, and warty growths, especially in positions where they are likely to get rubbed, and any sort of a lump or tumor, should be shown, at once, to a competent surgeon, and promptly removed if he so advises.

So much for prevention. Cure also depends on prompt and skilful care. Promptness cannot be over-emphasized; for the best chance of cure is during the first few weeks, and generally before the cancer even begins to cause the slightest pain. The public, then, must learn the danger signs:—any lump in the breast, any unusual discharge or bleeding; any sore that fails to heal, especially in the mouth or on the lips or tongue; in middle life, persistent indigestion and loss of weight, or bleeding from the rectum; these are signs of possible cancer of the breast, mouth, lips or tongue, stomach or the

rectum. On the first appearance of such symptoms, competent advice must be secured. These symptoms may not mean cancer; but if cancer is to be prevented, they all require the very best professional attention.

If you smelt smoke in your home, wouldn't you take immediate action? The possible signs of cancer are infinitely more important; for failure to secure really expert care may mean, not loss of property, but death. Death, for lack of prompt and proper care, is the present tragedy. Surgery has made such real advances, and with the X-Ray and radium as auxiliaries, has so standardized treatment, that very many cases of cancer can be cured. Yet people again and again come to expert surgeons, or are sent by general physicians to such experts, too late. We have seen a surgeon stand pale with tears in his eyes, knowing that he could not save a woman sent to him by a general practitioner who had watched a lump grow in her breast for a year. If that woman had got competent advice eleven months before, she would more than likely be alive today.

On first observing suspicious symptoms, go at once to a really expert surgeon. If anyone can effect a cure, he is the man to do it. But beware of the physicians who are behind the times. The most expert and most experienced surgeon is none too good. And how can you find him? Apply these two tests. See if he is on the staff of a first class hospital; and then go to a library, get out a copy of the American Medical Directory, and see if he belongs to the American College of Surgeons. Every Surgeon who cares for his reputation, and who can measure up to modern standards, belongs to the American College of Surgeons. Don't trust your own case, or

let your friends trust theirs, to any one possible less competent. If you will all do your best to spread these rules, you will help save from cancer the thousands of lives that ought to be saved this very year.

“WORRYING ALONG”

You have heard the sweet old Quaker Lady's remark to her husband, "All the world's a bit queer, dear, except thee and me; and sometimes I think that thee's a wee bit queer." That's going some. But there is this truth in the old lady's exaggeration, a great number of people nowadays are over excited, worried, troubled,—in short, they are far from healthy-minded.

People are apt to think that mental health is one thing; and morbidness another, with a sharp line of division between—just as they think that blindness is the sheer opposite of seeing. As a matter of fact, eye-sight ranges all the way from the sailor's trained acuteness of vision, down gradually into dimness, and though the blind can't make a living with their eyes, most of them can at least count the fingers that you hold up close before them. Mental states vary in much the same way. Anyone who is tired may be bothered with such mild mental symptoms as failure to remember a name; wandering of the attention; or irritability. At the other extreme, persons under hospital treatment for mental disease may in some respects be quite as intelligent and agreeable as you and I. Insanity, after all, is a legal not a medical term, and simply means inability to get along in society. Medically speaking, an "insane" man is a sufferer from one of a number of diseases; and sufferers from these diseases are not absolutely doomed men, as the public is apt to think. Every year three thousand new patients are admitted to hospitals for the mentally sick in Massachusetts. But more than fifty percent either improve enough to be able to get along nicely in the world of men, or are discharged completely well.

The public needs to know how far mental diseases are curable, and even preventable. Very many cases are due to such preventable causes as alcoholism and syphilis. The proportions of new admissions in Massachusetts due to alcoholic insanity has decreased, in four years, from about eight and a half percent to only about eight percent. Alcohol and syphilis in Massachusetts still account yearly for about three hundred cases of serious mental disease per year. All this suffering should and could be prevented. But so also should the really pathetic suffering caused by troubles of the mind which grow out of vague ill health, mental strain and twisted thinking.

The mind isn't simply the brain in your skull. The mind lives in every extremity of the body, acting on every nerve and muscle, reacted on by every change within the body. Poisons, — for instance, alcohol and morphine—fill the mind with delirious thoughts and pictures. Our thoughts can change the beating of the heart. Our emotions change the very chemistry of the body.

Mental health, then, depends largely on bodily health. Reasonable work, proper eating, exercise, recreation, fresh air and sleep, all of them necessary to physical health, all foster the health of our minds. But we must also pursue a wise life of the mind directly. Many an unrecognized internal conflict of the mind — for instance a conflict between duty and fierce desire — expresses itself in terms of real bodily pain. In this is the explanation of many cases of so-called, "nervous breakdowns," and many mysterious headaches or back-aches. When the conflict is solved or adjusted, or sometimes merely recognized, the pain wears away.

Mental health also depends greatly on our surroundings. The rush and complexity, the monotony and ex-

citement of an industrial civilization tend to mental and physical weariness and ill health. Our weariness begets worry, worry destroys sleep, and weariness and worry viciously revolve in a circle of mental mischief. The sameness of factory and office tasks breeds a craving for senseless excitement. The life of the mind runs swiftly, but with noisy friction, in ruts which it never chose.

What is the remedy? In cases where worry and "Nervousness" increase so as to alarm us, we should carry our burdens and perplexities to a physician — a good physician who can understand and give proper treatment and advice. Where a physician is not needed, a simple remedy is to take thought; to stop to rest, to scan at leisure the goals which we are so violently pursuing; then, definitely and without reservations, to decide on the line of personal action in which we really believe. In such decision there is often rest, refreshment and sanity. Such taking stock of our aims and ideals is not, however, the whole of mental health. Mental health, after all, and for most of us, is a question of character: it depends on truth, on openness and courage, on patient and friendliness and faith.

MEDICAL BUNK

The advertising columns of newspapers are crammed; the bill-boards are painted and plastered; the electric signs flicker and glare with health-ads. Do the promoters flaunt them before us for our health? No. They pay out good money for newspaper space, roadside space, and space in the night sky, — for the one simple reason that money so spent brings more good money in. It sells the advertiser's goods. Those goods, however, aren't always good for us. Not by a long shot. Advertised drugs and advertised advice are almost always needlessly expensive, fraudulent or dangerous to health; often they are extravagant, fraudulent and dangerous all at once. What of that? These ads are really clever. And the dear old public puts up its cash, in the hope of two and three hundred percent profits—just as if it hadn't been bitten time and again before.

The canny health-ad man baits his hook with scraps of truth. By preference, he borrows them from some health movement, — for instance, the relatively new, and really important movement for better teeth. "Pyorrhea," cries a Promoter, "Pyorrhea is sweeping the Nation like a plague! Eight out of ten men and women past the age of thirty have pyorrhea." This, of course, is a wild exaggeration. No matter. The ad-man dashes on, to tell us of bleeding gums, in pyorrhea pus pockets, and exuding pus—eight gallons of which the patient will swallow during the course of the disease. "The results," he continues, "are headaches, dyspepsia, intestinal disorders, hardening of the arteries, Bright's disease, rheumatism." One would think that these statements might suffice to scare us stiff. But the ad-man gives the screw another turn. "Now-a-

days, no good physician considers his diagnosis thorough," so says the inexorable ad-man, "no good physician considers his diagnosis thorough without sending his patient to a reliable dentist for a pyorrhea examination."

Having fixed in our minds the thought that he has only a two to ten chance of escaping a long list of horrors, the ad-man vouchsafes a ray of comfort. "Pyorrhea can be prevented." One breathes again. "It can be prevented," says the ad-man, "but in one way only; by killing the germs before they are safely lodged between the gums and the teeth."

How simple! How convincing! The word "only," to be sure, is misleading. The "only way" to prevent pyorrhea is not to kill the germs with the ad-man's pet product. Far from it. Few of us are threatened with pyorrhea at all. And for all of us, the best preventive of pyorrhea, and other diseases too,—is usually not to attack the enemy germs directly with antiseptics that may injure the cells of our own bodies far more than they injure the germs. No, the best preventive as a rule is our own resistance to disease. And the best way to keep our disease-resistance high is to follow the honest rules of general good hygiene, twenty-four hours a day.

Scraps of truth from the health movements of the day,—these, as we have said, are the ad-man's favorite bait. You know, and he knows, how important, in public health work, are the so-called respiratory diseases. The anti-septic vendor fastens on this fact. "Disease germs," he explains truly enough, "enter the system through the delicate membranes of the mouth, nose and throat." But his deduction from this is more questionable:—"Use every day, our real, germ-destroying antiseptic as a mouth wash, as a gargle or as a spray." The antiseptic

man, however, isn't going to have things all his own way. The Dental cream seller breaks in: "Take care of your upper air passages," he cries. "Kill those germs, kill 'em with our dental cream; it destroys pneumococci, the pneumonia bacilli that lodge in your mouth and throat." That's an idea, isn't it! If tooth paste will insure us against pneumonia, and influenza and so on *ad infinitum*, whenever we brush our teeth, why invest in that other fellow's antiseptic, as a gargle or a spray?

Why indeed? But granted even that the tooth paste or the spray will destroy the bacilli once or twice or three times a day when we brush our teeth, or when we gargle with an antiseptic or when we spray it into the nose, will it leave those delicate membranes uninjured, and healthy, and equally strong to resist the millions of germs that we shall probably inhale, in the hours between tooth brushing and tooth brushing, or between gargle and gargle, or spray and spray? That is a real question; and one to be answered convincingly, not by the concern with its big money invested in a proprietary antiseptic or in a Dental cream, but by the Throat Specialist whose interest lies in the bearing of Scientific truth on your personal health and mine.

Well, we are confident that you will be cautious. Beware of health fakers. An antiseptic put out, for example, by a rich concern is naturally advertised in the very most lavish way. See if you cannot get a safer equivalent at a fraction of the price. Beware of dental creams that claim too much as germicides. And remember, please, that your own resistance, which depends largely on good hygiene, is your most potent defence against disease.

Habits of good hygiene, including proper food, sleep and exercise, will do more to keep you well than all the

nostrums in Christendom. If you fall ill, or feel bad, in spite of sensible living, get the most expert medical service that you can find. It is far cheaper in the end. Steer clear of the advertising Doc. Would you let a plumber monkey with your thirteen-jewel watch? In ninety-nine cases out of a hundred, the health-ad Doc has neither the education nor the hospital experience essential to an expert. Don't let the ad-man pull your leg. Don't buy his drugs. He adds the cost of advertising to the price, and a fat profit too. In patent medicines and advertising Docs, play safe. Taking risks like that might cost you years of health, and possibly life itself.

HEALTH AND THE DOCTORS

No sensible man neglects the engine of his automobile, or even of his flivver, until it balks and chokes and finally—ten miles from nowhere—gives up the ghost. The canny owner, or driver, learns all he can about his engine, and takes care of it. Nine times out of ten, if it heats, or knocks, or fails to develop power, he can find out why, and fix it. But the tenth time, when he hasn't the necessary tools or skill, he takes the machine to an expert mechanic as soon as ever he can. What is more, after she's been running some thousands of miles, he has her overhauled, to find every small unnoticable wear, and cure it before it makes trouble.

Live men nowadays realize that their bodies are infinitely complicated machines, and infinitely delicate in their adjustment. They realize that their bodies, as machines, need sensible watching and care. What is more, they have found that it pays to have their bodies looked over, from time to time, very much as you overhaul an auto. The Life Extension Institute, whose health ads in the newspapers are about the only ones that don't really make for sickness,—the Life Extension Institute advises yearly physical examinations, and provides means for having them made. But the last word in overhauling the human machine involves something more. And that something more is team work by a group of specialists.

The different parts of the body are so delicately inter-related, and our knowledge of their different functions is so specialized, that a single doctor working alone can hardly get a complete picture of a doubtful case. That is why many physicians send patients to the so-called "diagnostic clinic" at the Massachusetts General Hospital in Boston,

where modern apparatus, laboratory and expert service of every kind are available at a minimum cost, and where the results are reported back to the physician. Or our Doctor may send us, or we may go without being sent,—to the Boston Dispensary Health Clinic. This Health Clinic is not a Charity. Any wage earner may use it. He pays five dollars, the full cost of his examination; his blood is tested; his eyes, ears, nose and throat are examined; he strips and is gone over thoroughly by an internist,—lungs, heart, blood-pressure, etc. etc.;—and a summary of observations with suggestions for correcting defects and for changes in his mode of life,—sleep, diet, exercise—if necessary, are sent to him or to his regular physician.

An overhauling like this, is worth while yearly. Now and then it reveals the beginning of something serious, for instance cancer, or tuberculosis or kidney trouble,—something which can perhaps be completely nipped in the bud; now and then it puts a vaguely run down man back on the high road to well being. But no overhauling, no matter how thorough, can insure you a clean bill of health for a year, or even for a month; any more than overhauling an automobile can prevent an old strain from developing into a crack, say, in a spring or an axle. Overhauling is absolutely worth while. But we must watch the machine just as carefully after it as before. Only a ceaseless lookout for the beginnings of trouble, only prompt, constant and expert care, can insure a fair share of bodily health.

But just what are we to look out for? Our regular physician should help us answer that question. We must not, of course, be forever observing our bodily symptoms; that would do us more harm than good. But without extreme self attention, without taking our small ills too hard, we can learn to keep an eye open for the things which need attention.

Infection of the nose and throat, with which all the so-called children's diseases and many adult troubles begin—these infections, if they do not quickly clear up—require expert care. Pain, on the whole, is worth our attention. It may mean nothing serious. But it may be a danger signal: violent headaches, for instance, may mean a brain tumor; and only the expert can tell. Pain in the chest, without any coughing, may mean tuberculosis; and again only the expert can tell. Fever is another signal of danger. We need not suck a clinical thermometer every day. But it is only sensible to know what our normal temperature is; and if we feel shivery or otherwise “queer”, to see whether the thermometer registers a degree or so higher. If it does, the body is at war with some bacterial enemy; and we should call in the Doctor at once. But in general, we have to rely on signs which sound vague, yet which we really understand well enough: if we feel sick, or weak or “queer”, and if these sensations do not clearly result from our own known folly, then it's up to us to get advice.

When we consult our physician about symptoms like these, our trouble may be slight. This need not make us bashful. If he is worth his salt, he will appreciate our consulting him both early and fairly often. If he doesn't understand, if he treats us as fools for making a fuss about nothing, we should pick another Doc. The alert family physician wants all the experience he can get with the beginnings of disease. Most people, by coming to him with a disease that has run half its course, give him only half a show. Treat him better than that. Go to him at the first signals of danger. Give him a chance to know you. Let him help to keep you well. That means some outlay. It means outlay for the business man to have a lawyer steer him clear of the courts. Yet for you, as for that business man, prevention pays in the end, and pays cold cash.

VACATION TYPHOID

The vacation period will soon be here. Most of you, will be going off for change and recreation, at least for a week or two. A lot of you young men will go to camp. You are all counting on a good time; and the Red Cross Health Service congratulates you. We hope that you will come back strong and fresh for work and play. But we must warn you too. For these delightful vacations are dangerous. It sounds like a paradox to say so; it is a fact, however, that vacations result in much sickness. As any Public Health Expert can tell you, the end of the vacation season brings a rise in "Morbidity rates"; an increase in the number of cases of disease. This is particularly true of one very serious disease: typhoid fever.

Typhoid, which we hear so little about in our cities and large towns, is still very prevalent in America as a whole. With 150,000 cases, and 25,000 deaths a year, typhoid, in the United States, is certainly not to be laughed at. The only reason why you and I so seldom hear of it nowadays is that our best boards of health have learned, often by bitter experience, how typhoid must be prevented. And then, they have gone to work and prevented it.

How have they done that? Why, mostly by the expensive but necessary method of cleaning up the water supply.

Typhoid, you see, is mainly a water-borne disease. Unlike various other ills that flesh is heir to, typhoid is exclusively a disease of human beings; and human beings are careless. They don't know, or don't bother about

the fact, that bodily discharges of people with typhoid are full of typhoid germs. So they empty town and city sewage into rivers and streams. They let infection, from badly placed privies, seep into their wells; and they fail to realize that their river and stream and well-water is really dilute sewage. It looks clean; it tastes good; the sewage in it is too much diluted to show. So they wash their vegetables, and rinse their milk-cans, in water that swarms with germs. And among these germs, too often, are the typhoid bacteria.

This happens the more easily because people with mild cases of typhoid, who don't know that they have it at all, spread infection unconsciously. So also do the so-called "carriers" who, after recovering from typhoid, still have typhoid bacilli living and multiplying in their bodies. Discharges from their bodies get into wells and streams. And this is why water cannot be considered safe, unless brought from sources that are free from all possible contamination or unless treated or boiled, to kill the bacilli which it may contain.

Unrecognized cases of typhoid, and typhoid "carriers" start epidemics in more ways than one. If they happen to be cooks, handling food with unwashed hands, they transmit the disease to people whose meals they prepare. As farm hands milking cows, they get the infection into the cow's udders, and into the cans, and so into milk. Even a few bacilli are enough to transmit the disease. And in milk, in a few hours, they may multiply enormously. Woe to us, if we drink that milk.

Just as water can be made safe by boiling, so milk can be made safe by the process called pasteurizing. In many of our cities the Boards of Health require the pasteurization of all but the highest grades of milk. In the coun-

try, this isn't done. As a rule the farm hands are well, and no obvious harm results. It is the exceptions that are dangerous. But the danger is real and great. A typhoid epidemic, in one of our New England cities, began with the milk from a farm whose owner "Took no Stock" in pasteurization. Typhoid bacilli got into the milk. That started the disease, not only in the city where most of this milk, unpasteurized, was sold, but at home in the farmer's own family. And the farmer himself, because he took no stock in pasteurization, drank typhoid bacilli in his own milk, fell ill, and died.

All this may sound like an ugly fairy tale, if one has never seen typhoid bacilli. Look at them through a microscope, and you will easily believe in their power for evil. They appear like minute straight lines, a crowd of them, shifting, hurrying with the intense activity of a maddened mob of men. The energy of these tiny lines is startling. But look again. Their energy can be quelled. Introduce, among the bacilli, a minute quantity of blood from a man with typhoid. That man's blood, fighting against the disease, has produced something, in itself, more powerful than the bacilli. As that blood spreads around them, you see those insanely hurrying, straight, short lines stop, one after another. More and more of them are arrested. Soon, the whole field of the microscope—a moment ago all vitality and haste—is an expanse as motionless as death.

When people recover from typhoid, that is what happens. As the disease goes on, their blood manufactures, in itself, a poison for its enemy. The patient's blood is a battle ground. When those fierce, line-like bacilli, at last, are mere corpses in the blood-stream, the man is well.

Now this strange process of cure has shown us how to

resist the infection. We can give our blood the same power, that is aquired by the blood of people with the disease. The process is simple. By three injections of a pure and entirely harmless typhoid "vaccine", supplied free to physicians by the State Department of Health, the blood of most of us can be given this power against the bacilli of typhoid. Once "typhoid vaccinated", we are probably safe for two years; we may be infected with the bacilli; our blood will lay them low.

We hope we have made clear to you the risk of typhoid infection, when going off on vacations to places where we know little or nothing of the water supply, or of the health of the people handling our milk or food. In theory, we can make ourselves fairly safe by boiling or pasteurizing our milk, and boiling our water. In boarding places this may be practically impossible. And even if we could see to all this cooking of milk and of drinking water, our vegetables would still be washed in unboiled water which may contain the germs of typhoid, and of other diseases too.

To make ourselves safe, then, at least from typhoid, the best thing to do is to apply the lesson learnt by our army. Every precaution was taken to prevent the men's drinking polluted water. And in addition they were all typhoid vaccinated. The result was that typhoid,—a scourge in previous wars,—was practically wiped out. Hospitals have learnt the same lesson. It is now their regular practice to vaccinate the nurses for typhoid. Commercial travelers should follow suit. So should vacationists. Don't run risks. Let us urge you seriously to avoid that procession of 150,000 people sick with typhoid: to steer clear of those 25,000 coffins, for people dead from ty-

phoid. Play safe. Look out for your drinking water. Look out for your milk. And before you go away get your doctor to vaccinate you for typhoid.

SUMMER VACATIONS.

Vacation time is coming. Boys and girls will be off by the hundreds to summer camps. Flappers will go visiting. Young men, and their seniors too, will go hunting or fishing, climbing, crusing. Folks of all sorts will "vacate" in ways many and various. But some sort of vacation almost every one will get, with rest and change and, let us hope, that real recreation which rest and change should bring.

Country vacationists yearn for the city: they crave the change of its clangor and brightness. You and I, most of us, are tired of that. We know our city streets. From schools, offices and shops, we want to be off and away, with space between us and them. Let's hang up overalls, chuck algebra and Latin on the top shelf, slam down our desk tops. Wiping the ring of telephones out of our ears, let's make for sunlit spaces and wind in the hills.

The contrast of stillness in the open cancels our old insistent thoughts. If we know at all how to take our vacations, we bathe in sleep. Like Walt Whitman, we "loaf and possess our souls". Hurry and tiredness cleaned out of us, we face the world with every sense newly alive. We feel as new wonders the sunlight on breeze-rippled grass, the tree toads singing like fairy bells in the night, the silver of one pale star at dawn——

We need not be poets, or even nature sharks, to feel such things. Half consciously perhaps, we are renewed by nature. But we are renewed and so refreshed that we start out with a vim to enjoy life. Instinctively we reverse our every day ways. Starved for literature, we bury ourselves in books. Hungry for companionship, we get together in pairs; we gather in gangs. We dash into sport,

we hike, we motor, we climb, we dive and swim. With all our energy we tone up our bodily muscles; we tighten the cords of the spirit. And in raising their tone,—in tuning them, as it were, ever higher and higher,—our one danger is least the tone grow shrill, lest the music jangle, lest the cords, at last, even snap.

It seems carping to speak of dangers ambushed in vacation days and ways. The dangers, however, are real. Let us face them. First of all, for many of us, too sudden vacation is risky. If we have been working our bodies hard and constantly, too sudden inertia will put us "out of sorts." If we have been living a sedentary life, abrupt and violent exercise will bring, to most of us, anything but comfortable health. It is wise to go gradually in change. A little exercise at first, and then, little by little, more: that is as sensible a rule, for most of us, as tanning the skin little by little, instead of broiling it into blisters by sudden prolonged exposure to the sun.

In our craving for change on vacation we often go to extremes. Is it necessary? In camp, for instance, must we really go dirty day after day? Must we wear the same undershirts and drawers unwashed for weeks at a time? Must we absolutely share one towel with the whole careless crowd? Exaggerations like these may be jolly. They result, too often, in crops of boils or in that skin-infection, "red flap," which is rampant in summer camps. So isn't it easier, in the end, to keep clean?

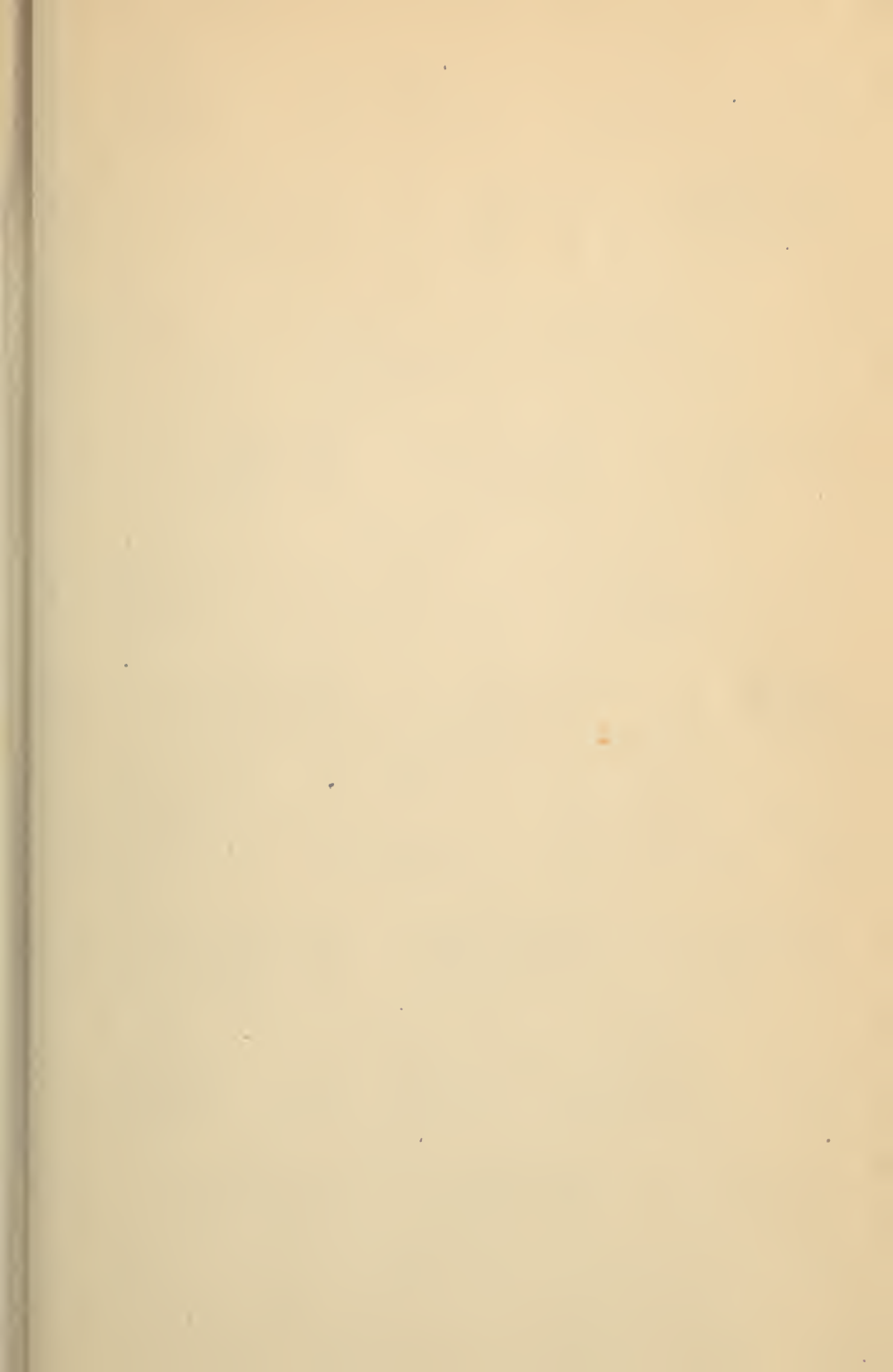
On vacation, as in every day life, we must stick by our habits of good hygiene. We must remember, for instance, to boil our milk and our water, unless we really know that they are free from infection. As we have explained in previous talks, it is prudent also to get typhoid-vaccinated before starting, and not only typhoid-vaccinated,

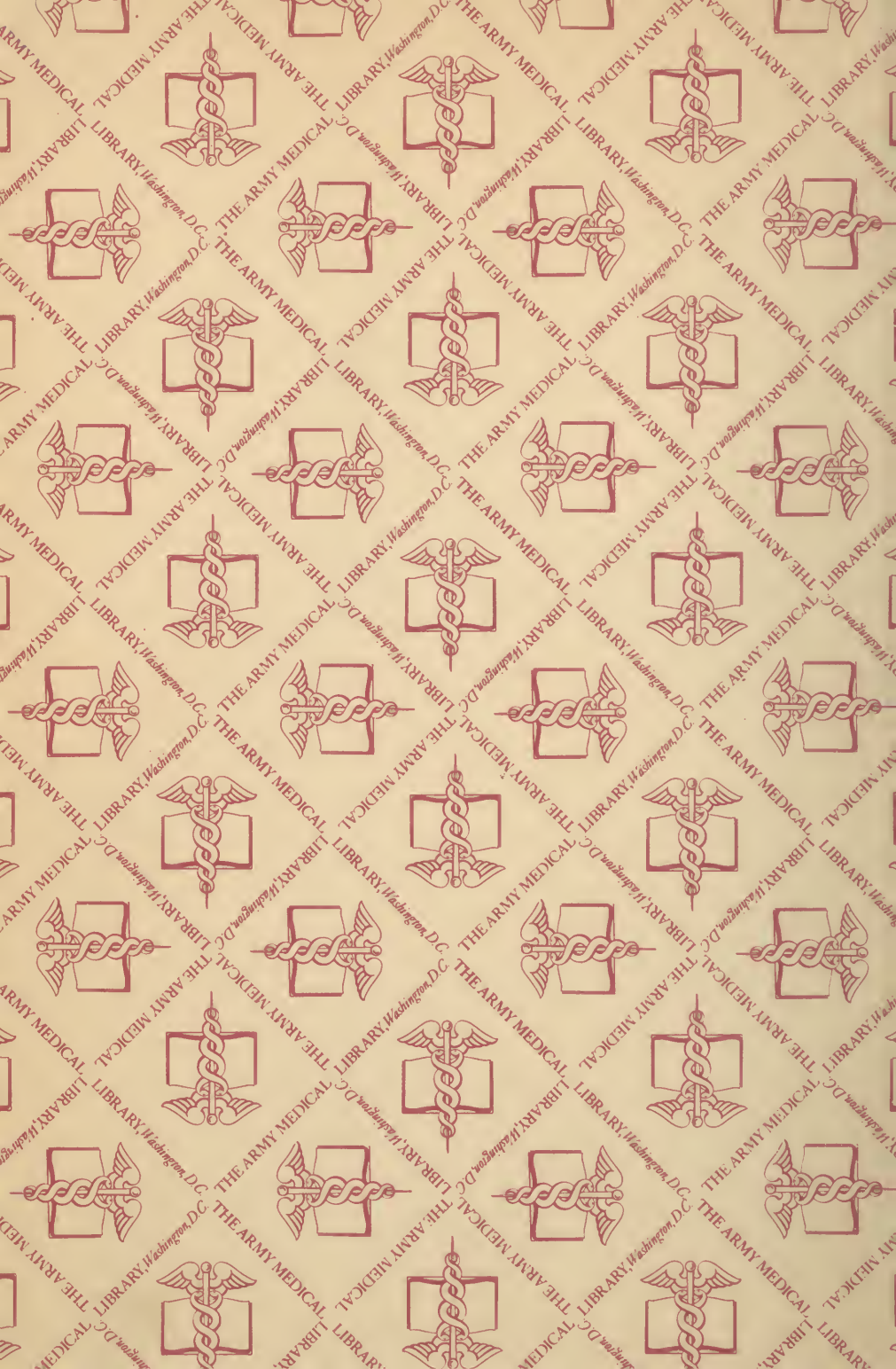
but vaccinated for small-pox. If you are traveling far, this is essential. For where vaccination has been neglected, for instance in our west, small-pox is showing its ugly head again. It is back in virulent form, with a heavy percentage of deaths.

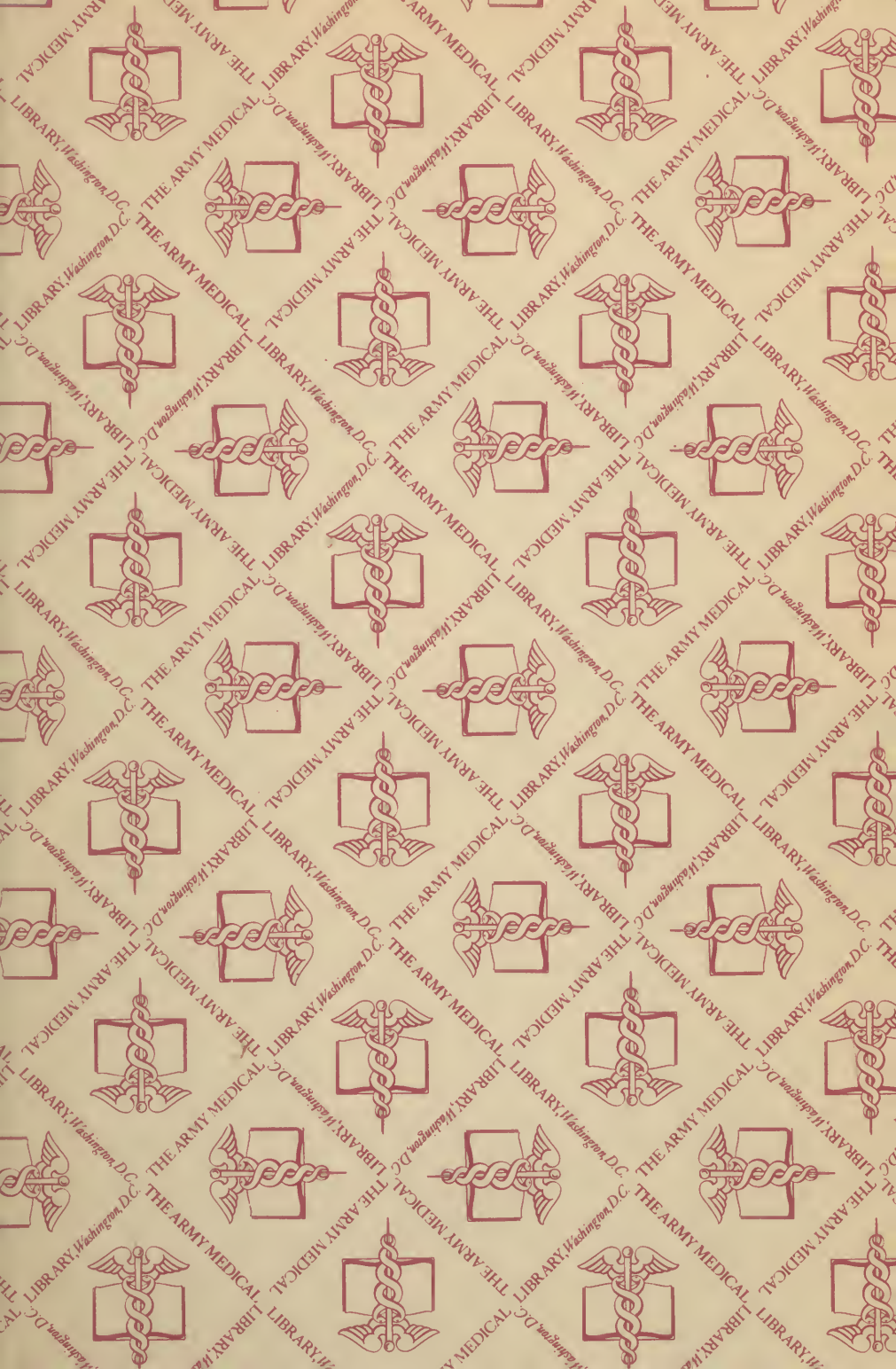
In the fun and excitement of getting away, we too often forget such dangers. In our thirst for change we forget mere prudence. We throw to the winds those habits of sensible living which, after all, are the very foundation of health. And so our vacations turn out to mean, not recreation, not renewal of happiness, confidence and health, but gadding and excitement, loss of sleep, sport over done, competition run into the ground. They mean not use, but waste of energy; dissipation, not clear pleasure; and in the end, vacation-typhoid perhaps, or after-vacation discontent, lassitude, vague upsets, autumn colds and other infections, low physical condition and general poor health.

In summer camps and out of them, in summer hotels, on motor trips, in every possible form of vacation, these are the dangers. They are real. But the blessings of vacation sanely planned and lived, are realer yet. Such a vacation brings us back to work-a-day things, strong in body, inspirited and gay. What seemed wearing before, may be a task, but no longer overwhelming. What seemed irritating will be shot through with fun. What we shall lack will not be strength or courage, but sense to preserve us from physical cock-sureness, and humor to keep us from being brash.

We wish you, each and all, the best possible vacation, with rest aplenty, recreation to your heart's content. May that vacation, when you get it, bring you faith and will reaffirmed for living; gayety, health and strength renewed.







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